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Service Design Geographies, Proceedings of the ServDes2016 Conference

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Publication date:
2016

Document Version
Accepted author manuscript, peer reviewed version

[Link to publication from Aalborg University](#)

Citation for published version (APA):
Morelli, N., Götzen, A. D., & Grani, F. (Eds.) (2016). *Service Design Geographies, Proceedings of the ServDes2016 Conference*. Linköping University Electronic Press.

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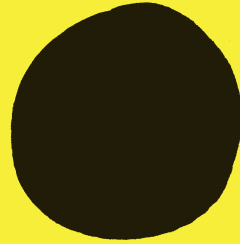
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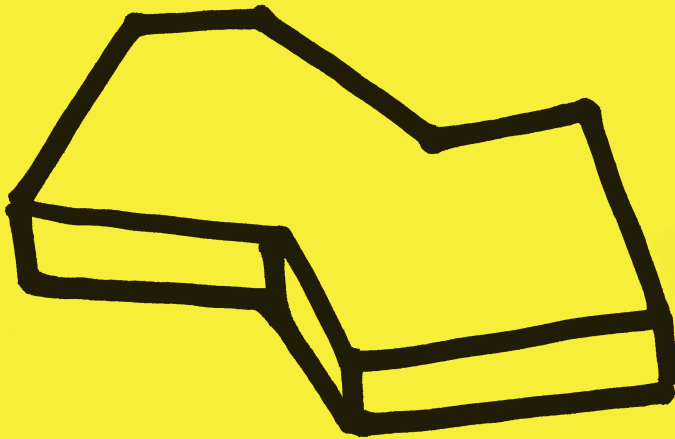
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Service Design Geographies



ServDes.2016



Edited by Nicola Morelli, Amalia de Götzen and Francesco Grani

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Copenhagen 24 - 26 May 2016

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Ways of Seeing the Design Material of Service

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Abstract

This paper makes a contribution to the current conceptualisation of service as a design material from three different perspectives. We use definitions of the term material, the connection with service logic and the techniques that service designers use to discuss ways to understand service from a design perspective. Service designers have tools for working with components, things, locations, actions, procedures, interactions and experiences at their disposal. Service designers work with a meta-material for the most part, which is a material representation of the services they are (re-)designing. Unlike fields where the material is worked into a finished form, the material of service design traverses between the concrete and the abstract throughout the design process.

KEYWORDS: design material, perspectives

Introduction

In this paper we develop three ways of seeing the materials of service to give new insights into the nature of service itself, and to give ground for leverage for service design and research. The basis for the discussion is that of Design, which can be conceptualized as transforming the materials of a design situation (Schön, 1983, p.78). If design, as e.g. Schön (1992) would argue, is about a “conversation with materials” what then are the materials of service? There has been some work looking at what it means to be a designer working with services as a design material (see e.g. Clatworthy, 2011; 2013; Secomandi & Snelders, 2011; Blomkvist, 2014) and less explicitly (Holmlid, 2007; Sangiorgi, 2009; Wetter-Edman, 2014). By examining service as a *material*, design has to transcend the tangible, and enter into a discussion of materials in a more abstract sense.

The first way of seeing service is based on an approach using the dictionary definition of material – in itself it expands the concept of material and represents different views on what it can be. However, the contribution here lies in how the definitions provide new ways to

conceptualize and understand service and the design thereof. The second way to see service uses the concept of service phrases, which can be understood as bridges between actions in a service. Also this view has implications for how service design is, or can be, understood. The third and final way to see service is through the techniques used by service designers, and the ways they enable service to be manifested. Before we go deeper into the discussions about the ways to see service, we discuss why it is important to consider materiality in (service) design.

Why consider the materials of service design?

Defining design as a human activity is not easy, but each characterization of design carries with it some indication about what should be emphasized in the practice of design. Any definition hence helps shed light on design from some perspective or emphasise some aspect, which can in turn inspire or make others see the activity in a new way. Attempts to define individual design disciplines can be based on differences in the material, and highlighting different aspects of the design material is a way to open up possible directions, interpretations, and ways of working. Hence, this discussion about what the material of service design is can have consequences for the development of the field, for further research and for education.

Within Product Design, a discourse regarding materials has existed for some time, and material exploration is now integrated into teaching. When talking about a conversation with materials in product design, it is clear which materials are being talked about. Karana, Hekkert and Kandachar (2008) review the term materials in Product Design and show how the discussion has developed over time. In their article, there is no doubt or discussion of what a material is, within this discipline. Similarly, when Capjon (2005) discusses the use of materials as an ideation tool, the meaning of materials within product design does not need to be described. Indeed, none of them define the term material, since they consider it an unnecessary question.

Within Interaction Design, a much younger discipline, a discussion regarding materials is ongoing and is helping define the discipline itself. Blevis, Lim and Stolterman (2006) discussed software as a material of Interaction Design. Gaver (1996) discussed the social as a material for design. Hallnäs and Redström (2006) explored deep into the foundations of Interaction Design through various materials, and Nordby has discussed RFID as a material of Interaction Design (Nordby, 2010). Löwgren and Stolterman (2004), as a paraphrase of Robert Musil's *The Man Without Qualities*, referred to software as the *Material Without Qualities* – the material that can be turned into anything. These discussions help with the ongoing conceptualisation of Interaction Design, and is an important part of the progression and identity of the field.

Buchanan (2001) has talked about what designers produce, or the “products” in design, as a way of distinguishing different orders of design. The forth order is concerned with environments and systems, however “[t]he focus is no longer on material systems – systems of “things” – but on human systems, the integration of information, physical artifacts, and interactions in environments of living, working, playing, and learning.” (Buchanan, 2001, p. 12). If the focus is not on materials however, then what is in focus and how can we transform the materials of the design situation?

With the explication of service logic, and introduction of a service dominant logic, the idea of tangibles (or goods) as one half of a dichotomy together with intangibles was questioned (Vargo & Lusch, 2004, Grönroos, 2011). A service logic is said to make the distinction

irrelevant, but for someone working with *shaping* materials this is not necessarily helpful. On the other hand, for someone who is interested in shaping something meaningful and useful, service logic (Grönroos, 2011) provides a model to highlight a systemic nature, as well as distinctions between what a service provider does and can do as part of a provider sphere, what a customer does and can do as part of a customer sphere, and what they do together as part of a joint sphere.

Within Service design, a discussion regarding the materials of Service design is emerging. The most explicit have been focussed on the service touchpoint (Clatworthy, 2011; 2013; Secomandi & Snelders, 2011). Sangiorgi (2009) has discussed the implications of working with service: “When the object of design becomes the way organisations conceive and redesign their own services, Service design needs to become more familiar with the dynamics and issues of organisational change.” (ibid., p. 418).

Holmlid (2007) compared Service design to interaction design, in an attempt to describe aspects or qualities of service as a material, and Kimbell (2009) described service design through studying practice. Secomandi and Snelders (2011) explored the object of Service design, and focused upon the tangible and intangible elements of services. Meroni and Sangiorgi (2011) described new ways for designers to work with services and how this will develop designers as facilitators of social and co-creation processes. They mentioned the need to work with processes, relationships and networks within a co-creation paradigm of designing for services. However, they did not identify the materials of design specifically. One exception is Wetter-Edman (2014), who proposes that stories, told between designers and other stakeholder during the design process, should be considered as an important design material.

This paper adds to the ongoing discussion about the materials of Service design. The intention is not to identify and provide a complete picture of what materials mean in and for Service design, so it does not develop an exhaustive list of materials. However, we believe that there is a necessary discourse regarding the materials of service design that must emerge as a means to a discussion of what Service design is, could, and could not, be. Such a discussion gives new insights into service, since something has to be combined, formed, customised and produced to provide service. We believe that these “somethings” have not yet been fully identified and that a discussion about them will give new insights into design of service.

The tangible touchpoint

A central concept in service design and in discussions about material manifestations of service, is the touchpoint (or touch-point). The term was used early on in reference to the blueprinting technique (Bitner et al., 2008) and according to Parker & Heapy, it was used among organisations to become more oriented towards a relational brand strategy. However, where the word was first used is unknown (Howard, 2007). Touchpoint as a word implies a point where a customer touches the tangible interface of a service providing organization. Several authors have attempted to provide more or less complete descriptions of what the term should include, such as people, things, locations, functions, printed media, web sites and so on. Some emphasise the physical part, claiming that these are the things that shape the experience of services (Parker & Heapy, 2006).

However, service designers usually do not physically rearrange the physical layout, the people, and web interfaces of actual services directly, only representations of these, and thus do not directly influence the touchpoints of services any more than they can directly shape

service experiences. In a sense, they are not designing the touchpoints. We will return to the touchpoint later, but first we introduce the ways of seeing service.

Definitions of the term material

The term material is a rich term with many connotations. In relation to design, it is often considered to be something that is physically formed as part of the design and production process. Further, since the term material is not commonly defined as part of design, but taken for granted, it is worthwhile exploring the term based upon its usage in the English language. The following dictionary definition of material is taken as one starting point to explore and consider the nature of service design, and show how it has particular relevance to the design of services. Merriam Webster (2011):

a) (1) the elements, constituents, or substances of which something is composed or can be made (2) matter that has qualities which give it individuality and by which it may be categorised <sticky material> <explosive materials>

b) (3) something that may be worked into a more finished form (4) something used for or made the object of study <material for the next semester> (5) a performer's repertoire <a comedian's material>

This definition clearly defines material as something that does not necessarily have physical form and makes the definition interesting as a basis for a discussion of service design. What are the “constituents” of service, what is the “object of study”, and what is a service designers “repertoire”? Further when relating to Schön's conversations with material, we can contextualise this as being the designers' conversations with the constituents of services.

The constituents of Service (1)

In design, the designer has to focus upon both the whole and the parts. Schön (1992) describes how the designer must shift stance and “oscillate between the unit and the total ... and between involvement and detachment” (p. 102). In service design, the same is true, in that there is a focus upon the whole and the parts, but of what? Kimbell (2009), after studying several design consultancies, describes how service designers work, stating that:

“The service designers paid considerable attention to the experience of stakeholders engaging with the service, both the service considered as a whole and the detail of the design of the various artefacts involved in constituting it (p. 250). “

There has, however, been little discussion within service design research regarding what the whole is in service design, nor what are the constituent parts, and how designers can best design them (or for them). When considering material, we should therefore consider both the whole as material and the individual parts as materials.

Matter that gives individuality (2)

A second definition of material is that of “matter that has qualities which give it individuality and by which it may be categorised”. The term individuality when applied to services can be

understood in a business context to relate to novelty, uniqueness, differentiation and the value proposition. This implies a relationship to innovation as well as categorization.

Each service is unique, but unlike other materials it is unique because the material constantly changes depending on who takes part in it, at what time and at what location. This is one of the fundamental challenges associated with identifying a general description of service as a material. Any attempt to study or observe a service influences the material.

Something to be formed (3)

This third definition of a material, “something that may be worked into a more finished form” relates to its use as part of the design and development process - as an exploration and forming material. Such a material is used in design to explore a problem and model and express characteristics of the final solution. In service design, this raises two questions: negotiation with whom, and using which materials?

Firstly, the nature of service development places the designer into a cross functional team. This brings with it specific needs in terms of ways of working (collaborative) and the challenges this brings. Molin-Juustila (2006) discusses the five critical elements that together create team cohesiveness during the fuzzy front end: personality barriers, different cultural thought worlds, language barriers, organisational responsibilities and physical barriers. Similar elements are identified by Persson (2005) and Pei (2009). The designer in such a team not only has to carry out design work, but also may need to facilitate team cohesion. Since the nature of service design problems can be described as wicked problems, then the designer has to participate in their work through discussion and exploration together with others.

The second challenge for the designer is that of engaging with the problem and solving it through exploration, representation and testing. Typically, a product designer might explore a product form in clay, wood or cardboard as a means of exploring a problem and finding a solution. This process, of problem exploration together with solution-generation is well documented in product design or architecture. Schön (1992) describes this as a reflective conversation with the problem and more specifically as a “conversation with the materials of the situation” (p. 78). Cross (2007) goes into detail regarding the design process and shows how the nature of a design problem can only be found by examining it through proposed solutions and how there is a reliance in design “upon the media of sketching, drawing and modelling as aids to the generation of solutions and the very processes of thinking about the problem and its solution.” (ibid., p. 37)

In service design, this occurs within a cross-functional team. By discussing, sketching and prototyping together, the team explores, negotiates, evaluates in an abductive context - a focus upon what can be. This has been termed negotiotyping (Capjon 2004). Capjon (2004) uses the term negotiotyping to describe how physical prototypes function as a catalyser for group processes. He describes this as collaborative conceptualisation or more simply shared experimentation which is facilitated by the designer and supported by physical prototypes. This aspect will be explored further in the third section, which relates to understanding the materials used in design representations.

Service as the object of study (4)

A fourth definition of a material is “something used for, or made the object of study”. This definition is singular, implying that there is one object of study, and therefore in relation to

design, must relate to high level concepts in design. In a service design context, this could be one of several considered to be the holistic service offering, or value proposition.

The service designer's repertoire (5)

The final definition of a material is that of “a performer's repertoire - a comedian's material”. In the same way that a comedian may have their “material”, or “repertoire”, there is a need to develop the same for Service design. At present, there is limited discourse regarding what service design is, and its constituent parts. Meroni and Sangiorgi (2011) see service design as a new sub-discipline of design, and Kimbell (2011) states “that designing for service offers an opportunity to rethink professional design and its role in organizations and societies more broadly ...” (p. 49). However the content of this sub- discipline is yet to be defined and discussed. There is therefore a knowledge gap in terms of content for a service design education/practice.

Löwgren and Stolterman (2004) talked about the importance of having a “repertoire of examples” in interaction design: a set of previous solutions, ideas, interactions etcetera, that improve a designer's design capacity. This in turn requires a language for talking about the goodness of various interactive experiences, to be able to verbalise why they are part of the repertoire. A similar line of thinking can be applied to service design where knowledge both about sociotechnical innovations, new services and new possibilities improves design ability. This can be important from a service design education standpoint.

Service phrases

The second view starts with another definition from outside the field of service design itself, but focuses on the meaning of service instead. In service logic, service is described as value-creation in three spheres; the customer sphere, the joint sphere and the provider sphere (Grönroos, 2011). And it is claimed that value is only created by the customer, or, as in SDL, at least phenomenologically determined by a beneficiary (Vargo & Lusch, 2004). This may lead to the idea that the materials of service are the things that are directly experienced by the customer, such as touchpoints, service evidence, front-line staff, etc. However, when trying to understand service in design, another perspective on the material of service arises: that of *service phrases*. These phrases extend across all three spheres of a system of value-creation, and highlight an interdependence – from a material perspective – between them. Before looking closer at service phrases a short description of related concepts are needed.

Koivisto (2009) used a customer-centric perspective of services to propose a framework for structuring services and customer experiences. In the framework, touchpoints were divided into channels, objects, processes, and people, and described as points of interaction where “the service and its brand is experienced and perceived with all the senses.” (Koivisto, 2009, p. 145). However, Koivisto (2009) made a distinction between touchpoints and so called service moments: “episodes or encounters where the production of the service and the interactions between a customer and service provider happen” (p. 142). In contrast touchpoints are “instances of direct contact either with the service system itself or with representations of it by the company or some third party” (adapted from Meyer & Schwager, 2007). An example of a service moment is a check-in process at an airport.

Unlike Clatworthy (2011) and Secomandi & Snelders (2011), Koivisto separated the physical attributes of channels, objects, processes and people from the interactions that take place

over time. This means that service moments contain a number of different touchpoints, and interactions with the touchpoints over a limited period of time. Hence, a service moment is defined by the characteristics of a situation. The interactions that take place in that situation are distributed across touchpoints and in time. A customer can e.g. interact with a ticket machine interface, the ticket itself, a queuing process and a person behind a counter in the same service moment.

While both touchpoints and service moments are useful constructs, they are not inherently material but need to be instantiated and activated to actually exist. Rather than being material, the ideas of service moments and touchpoints can be described as *strategies for manifesting services*. In addition, touchpoints focus on interactions between customers and service systems, thus leaving out a big part of services (such as backstage, support, maintenance, customer actions and so on). Here, service phrases play an important role in understanding the design material of service, regardless of whether designers work directly with these or with representations of them.

A service phrase has a recognizable starting point, a development over time, and a recognizable end point (see Figure 1). Holmlid (2012) has used the terms “trigger action” and “closure action” to denote the start and end of a phrase. A simple “trigger action” is that one decides to call for a doctor’s appointment when having a sore throat, an action that resides in the customer sphere. The first “closure action” is when the doctor’s appointment is set and the phone call is ended. The rest of the service consist of several service phrases: you hang up the phone and drink ginger-water for a week and head off to the clinic. You enter the clinic, wait for your turn, the doctor takes a test and you go home. You take the test and wait while the sample is being analysed and you get the test result. And so forth. All together the phrases can be viewed as a large phrase.

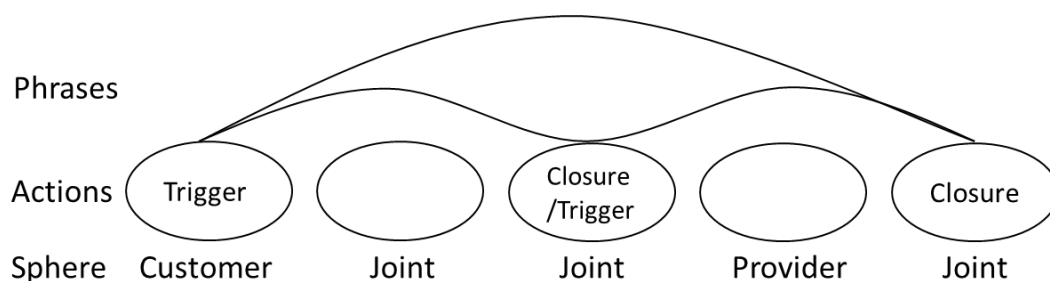


Figure 1: Phrases span across one or more actions in customer, joint or provider spheres.

Seeing phrases as a service material emphasizes scalability, in the sense that a phrase can be made longer or shorter, and that it can be populated with more or less actions. It gives an opportunity to zoom in and out, as larger phrases can be made up of smaller phrases. Phrases highlight modularity, in the sense that the order of phrases can be changed without disturbing the functioning of a module, and a conceptual model of a phrase can be transferred between services. Phrases also emphasize process since the phrases in themselves represent something ongoing. Phrases is based on a multi-actor perspective, and a phrase is also an action that is also an invitation for another phrase to occur.

Working with phrases as a material of service gives the opportunity to actually work with timing, tempo and rhythm in a service. And to direct the interest of designers towards how different actors contribute to these, which could be viewed as orchestration. As an example, during the waiting time from being identified with a possible breast cancer until the result of

a biopsy test, it is not uncommon that a patient calls the clinic with questions, google searches, looks up patient support groups etcetera. This waiting period is often described as long and painful, and when viewing the waiting time as the middle part of a phrase, what the patient is doing is to add activities to fill the waiting time with actions and activities, some of which are 'touchpoints' in that they concern the 'service provider'. This also highlights that there are many actors that drive and direct the orchestration, and that this is good.

Representations of “materials”

The third approach starts with the assumption that “something” is designed in Service design. Hence, it should be possible to identify, by looking at techniques for service representation, what designers transform as part of their design processes. By 'service representations' we mean the strategies used for manifesting service. These strategies result in material *surrogates* for service (Blomkvist, 2015). For instance, a customer journey map that illustrates a future service concept, is a surrogate that allows us access to a future situation where the service exists. Customer journey mapping is thus a technique that makes exploration of a future service possible before it exists.

Two basic types of techniques for manifesting service in design have been proposed: ongoing and definite (Blomkvist & Segelström, 2014). Ongoing techniques represent service flows that are continuously changing, such as walkthroughs, roleplays, and enactments. These techniques focus on their potential to communicate and explore how a service is experienced. Definite techniques, on the other hand, represent services as final visualisations that are persistent points of reference and that specify certain aspects of services, such as storyboards, scenarios, blueprints etcetera.

The techniques available to service designers for materializing and representing services can be one way to understand the aspects of services that are, or can be, designed. Blomkvist (2015) investigated the connection between a list of service design techniques and material aspects of services. The list was generated by looking at techniques in the book *This is Service Design Thinking* (Stickdorn & Schneider, 2010) and comparing them to empirical studies of service design. This work resulted in the following list:

- » Roleplay – making enactments of specific touchpoints or service moments and exploring them, using e.g. theatre methods. Does not require props made for the occasion.
- » Customer journey maps – a depiction of the customer's journey through a service with a focus on the experience.
- » Blueprints – a depiction of all components, actions and interactions involved in a service delivery from back office procedures to receipts.
- » Design scenarios – a description of a potential service use, used to explore certain aspects of the service.
- » Storyboards – similar to customer journey maps, but focusing on the interactions and actions. The depiction is built in the same fashion as comic stories.
- » Desktop walkthrough – using play dough, small figures, and whatever is available a service location is created and explored.
- » Service Staging – one or more locations are built, complete with props that support immersion in the service experience. The service is then enacted. Can be done together with external stakeholders.

The listed techniques can be used to represent different aspects of services. Roleplaying for instance allows designers to explore service interactions, behaviours, experiences etc, and work with those aspects as materials. This is different from the aspects of services that become available by using e.g. a service blueprint that mainly focus on the processes taking place within a service. The techniques are also qualitatively different, one illustrates an action as a box in a 2D space while a roleplay takes place in the real world and can be experienced by the participants. However, if we disregard the qualitative aspects of the technique, we can generate a list of aspects that the techniques materialize.

- » Components
- » Things
- » Locations
- » Actions
- » Procedures
- » Interactions
- » Experiences

These aspects represent both parts of the design process and parts of the outcome of design activities since the technique that were used to generate the list are used for both. I.e. things, actions and experiences are both *worked with* during the design process and part of the outcome of those processes themselves.

Touch-point orchestration - oscillating between the part and the whole

Orchestration as a term was initially used by Shostack (1984), and as a metaphor perfectly describes the whole/part phenomenon discussed earlier in the paper. In research terms, the orchestration of touch-points is mentioned but not focussed upon in great detail (e.g. Shostack, 1984; Payne & Frow, 2004; Holmlid, 2008; Zomerdijk & Voss, 2010). There is a recognition of the importance of touch-points and their orchestration, but no practical guidance as to how this could (or should) occur. Zomerdijk & Voss, (2010) underline this by stating “... the notion of designing customer journeys and their associated touch- points represents a valuable design perspective” (p. 74). However, this way of seeing service questions the ability to design customer journeys and associated touchpoints.

Most of the techniques discussed above are not described as actually working with material and immaterial aspects of existing services, i.e. service designers do not go out into banks or airports and directly manipulate the physical environments and ‘touchpoints’ – where customers and organisations meet. Instead, the locations, procedures and experiences are represented in other (meta-) materials. Designers coordinate this material work with the real world and traverse between immaterial, emotional and procedural aspects on the one hand and physical, manifested and tangible on the other hand. To do so, metaphors, abstractions, stories, and many different types of visualizations are being shaped into a more finished form through the amalgamation of real world impressions, design meetings, prototyping and various other activities in the design project.

While service designers make touchpoints available, by creating surrogates of services, they are not directly influencing the material of those services. The surrogates as representations of future services have their own set of affordances. A desktop walkthrough might make it possible to move something from one place of a service to another, but that move might not be possible in reality. Similarly, some feature of the actual service might not be represented in a surrogate, thus making that feature invisible to the designer. Hence, the service

representation is not the service, and traversing between one materiality and another in service design is also a process of translation.

Conclusion: Ways of seeing service as a material

Firstly, from the definition of material, service designers need to have an understanding of how they use and relate to materials as part of their design process (forming), as an outcome (eg. touch-points) and as a competence (the service designer's repertoire). We consider these three dimensions to be of interest and valuable for the future discourse, since they help us understand and perhaps further develop the field of service design. In many ways it might seem obvious to discuss and categorise service design in terms of process, outcome and competences. However, it is a reflection upon the field at present that this view does not exist and is called for. Perhaps it is time now for service design to look at itself and summarise best practice within each of these three areas. This would be particularly useful for the various courses that are now appearing around the world.

Second, a further aspect worth discussion is how service designers use materializations of immaterial aspects of service during the design process as tangible representations. These can be toolkits developed specifically for a project context, or generic toolkits. The proliferation of mapping activities using post-it notes is an example of the former. These strategies for manifesting service is something that characterizes service design, and can be seen as both a way for the designers themselves to explore a situation, but also as the development of boundary objects as part of a co-design process. Upon inspection, it seems that the service designer oscillates between material and immaterial representations of the same things, moving between the abstract (immaterial) and the concrete (material). The different moves in service design being between the actual and the represented. This can be described as "traversing a virtual cleft" in which something in the world is virtualised using visualisation techniques. We end up with a materialisation (tangible surrogate) of a service or some aspect of a service. When we do something with the surrogate it can be seen as a move back across the virtual cleft (it is virtual in the sense that it is not real - think desktop walkthrough) and try to say something about what reality we want the service to exist in. Perhaps this is the conversation with the materials in a service context? Instead of trying to make a strict division between tangible and intangible we could talk about the transitions, traversing, and translations between them? This can be a way to discuss the techniques, the competences required to work with them (including the repertoire), and the output in terms of the actual resulting material.

Third, there is a need to further develop a vocabulary and a discourse around materials in service design, which goes beyond simple tangible design outcomes (such as touchpoints). Well-designed touchpoints are important for service, but are not in themselves the key to understanding service as a material for design. With a concept such as service phrases, an important discourse can start to develop, where not only experiential aspects of time and collaboration become integral, but also how agents, resources, institutions and integrative actions interact to form these "phrases". Service phrases give access to aspects of the material such as rhythm, tempo, intensity, phrasing, etc. But also to aspects such as how initiative is structured, how power is shared and distributed, or levels of engagement. As a consequence, will it also be possible for teams involved in service development and design, to work with

co-creation of pluralistic values as a material, or even include pro-active and adaptive phrasing as an outcome?

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A view from the other side: perspectives on an emergent design culture in Whitehall

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Abstract

The use of design within government institutions is a rapidly accelerating trend of global dimensions. The emergent nature of these design practices, and cultures, raises questions about what exactly is happening in the interactions between design and political institutions, and how that might be understood in broader socio-economic and political terms. This paper reports on a series of interviews with senior level civil servants working in UK central government, all of whom have had some exposure to design methods and techniques through interaction with the UK Policy Lab. The paper sets out the ways in which the epistemology and practices of design, as introduced through Policy Lab, both expose and challenge those of the political institutions and policy professionals they seek to change.

KEYWORDS: design, design thinking, policymaking, politics

Introduction

In recent years there has been a growing interest in design by governments seeking to innovate practices of governing. A number of administrations are experimenting with approaches derived from participatory, co-, and service design, to improve service delivery and develop strategy and policy. The phenomenon is beginning to feature in design research: through mapping exercises undertaken, for example, by the Parsons New School for Design Desis Lab, Reos Partners, and Social Design Futures (Armstrong et al, 2014). It is also reflected in the emergence of conferences (such as Labworks 2014 and 2015), websites (such as researchingdesignforpolicy.wordpress.com and policy-design.org), books (Bason 2014, Jefferies et al 2013), PhDs (Christensen 2015) and a journal ('The Annual Review of Policy Design', 2013).

Much like other governance reform movements, the drivers for the adoption of design within different administrations are presumably various – and can be subjected to critique from across the spectrum of political standpoints (see Leggett for an analogous critique of

‘nudge’ techniques): the further encroachment of neoliberalism and the logic of the market, or a sincere attempt to improve the lives of citizens by better adapting to a 21st century problem field (Dunleavy et al, 2005), preventing ‘blunders’ (King and Crewe, 2013), and orienting administrations away from their own institutional perspectives? The phenomenon is ripe for analysis through a governmentality frame, deepening understandings of how design is being mobilised to extend and enable governance techniques.

Building on research that sees design as a contingent and situated set of practices (Kimbell 2013, Shove 2007), and design cultures as specific to, even generated by, social, economic and political systems (Julier 2007, Dilnot 2014), my research is seeking to extend existing accounts of the uses of design in government, and particularly in strategic-level decision making, by attending to the specificity of the political context within which these design cultures are emerging. In order to begin to understand what design is doing in policymaking, and how that might be read within wider political narratives, a study was conducted focusing on the first year of work of the UK Policy Lab¹ (see also Kimbell 2015).

Policy Lab is a team within the Cabinet Office,² whose remit is to support policymakers to transform their approach to policymaking by demonstrating new tools and techniques, generating new knowledge and skills, and facilitating a long-term shift in policymaking practice. The study consisted of a series of semi-structured conversational interviews with senior civil servants, all of whom have had contact with or experience of working with Policy Lab. The interviews were undertaken as part of a wider evaluation of Policy Lab³ as a new entity with a particular structure, set of projects, practices and targets. However our interest here is – and a number of interview questions delved into – the specific effects of Policy Lab’s design methods and approach, and the distinction between this kind of practice and ‘normal’ civil service practice.

The Policy Lab team proposed a longlist of participants that encompassed a range of levels of seniority, types of project, and points of view (they were asked to include people they knew to be sceptical about their methods as well as enthusiasts), from which 15 civil servants from 6 Whitehall departments were selected for interview. Most were interviewed in person in their own departmental environment (a small number of interviews were conducted by telephone), and these conversations were recorded and transcribed. The texts were reviewed to identify common themes, and then more closely analysed according to that set of themes. The phrases and quotes used in this paper are selected for being emblematic of those themes. Because of the pre-existing relationship with Policy Lab, and the purpose of the conversations (an open and frank assessment of the team’s work), these interviews represent an unusually candid set of views from senior civil servants about their institution and its policymaking practice and culture.⁴ As such they offer a unique opportunity to understand how civil servants are making sense of design practices.

In this paper we focus predominantly on what these conversations reveal about what design is doing in policymaking, and comment briefly on the potential for critical readings from a

¹ <https://openpolicy.blog.gov.uk/category/policy-lab/>

² The Cabinet Office is a department of the Government of the United Kingdom responsible for supporting the Prime Minister and Cabinet of the United Kingdom.

³ Policy Lab commissioned BOP Consulting (<http://bop.co.uk>, for whom the author was working at the time) to conduct an impact assessment of its first year. Interviewees were approached initially in order to inform the impact study, and as part of the conversation consent was obtained to use these texts for the purposes of an academic study.

⁴ Interviewees have been quoted anonymously (including omitting job titles which in certain cases would make them identifiable) given the sensitivity of some of the subject matter.

broader governmentality perspective. In relation to the first point, what is perhaps most interesting is not so much an account of the insights, ideas and proposals that a design-based approach can generate – all of which it might be possible to predict from a reading of the design thinking literature (both academic and popular accounts: Brown 2009, Martin 2009, Cross 2001, Dorst 2015, Buchanan 1992, Michlewski 2008, Kimbell 2011) – but what happens when this approach to problem-solving collides with a specific institutional culture. A political one, certainly, but even more precisely than that – the policymaking culture of Whitehall departments, distinct from that of not only local government and devolved administrations, but also other disciplinary communities within Whitehall. What happens at the interface, which means some of these insights, ideas, and proposals get mobilised, and – more commonly – others don't?

What is design doing in policymaking?

First, a few comments on what 'design' means in this context. Policy Lab markets its offer as contributing 'design, data and digital' capabilities to the suite of policymaking tools (RSA Journal 2014). Engagements with civil service teams range from two-hour-long introductory workshops, to projects lasting several months. In such engagements 'design' refers to: modes of research that delve into lived experience, often based on design ethnography; collective inquiry; the use of provocations and speculations as a research probe; generative techniques drawn from co-design and co-production; collaborative creativity; modelling techniques such as prototyping; and agile project methodologies. All taking place in settings and through conversations facilitated by a range of materials: coloured pens and paper, post-it notes, play-doh and craft materials, co-design templates such as personas or user journey maps, and other prompts such as photographs and visual materials.

The policy problems addressed included questions such as how to keep people in work when they have a long-term health condition or disability, how to encourage divorcing couples to mediate rather than go to court, how to improve the experience of victims reporting crime, how to increase the take-up of free early years childcare, and how to improve the system for assessing the policy profession itself. See table 1 for some project summaries.

Project name	Department	Project description
Family Mediation	Ministry of Justice	This project brought multiple stakeholders together – between some of whom relationships are traditionally quite adversarial – to develop ideas for how divorcing couples can be persuaded to mediate, rather than going to court – which is more costly for everyone involved.
Policy Profession Assessment	Policy Profession Support Unit	The purpose of this project was to rethink the way that the performance of policy professionals is measured, and their careers are supported, in order to help those civil servants better understand how to develop their skills and capabilities as a policymaker, and progress professionally.
Disability and Health	Department of Work and	This project was based on the premise that keeping disabled people, or people with health conditions

Employment	Pensions	who are at risk of unemployment, in work avoids the personal cost of potential long-term unemployment, which can exacerbate health conditions. The combination of new research methods and ideation resulted in propositions for both small and large scale tools and services, to support employers, providers and users to manage health conditions and avoid unemployment.
Young People and National Insurance Numbers	Her Majesty's Revenue and Customs	HMRC experiences high call volumes relating to people losing – or not even having been aware of having received – notification of their National Insurance number. As this is one of the first instances in which government interacts with a young person himself or herself, rather than via their parents, it is an opportunity for government to establish a relationship with young people. The project sought to understand both how people might be encouraged to look after their National Insurance number once received, and looked at the wider context of how this engagement fits into a longer-term relationship with government.

Table 1 A selection of policy challenges addressed by Policy Lab, in partnership with other civil servants and policymakers, since April 2014.

Interviewees were asked directly what was different, useful, or problematic about a designerly approach. All 15 interviewees acknowledged a need for change in policymaking practice, whether that is to do with meeting the demands of an austerity regime, a recognition that some policy – especially social policy – has systematically failed to achieve what it is meant to, or for the sake of improving policymaking as an ‘art’ in its own right. As a response to that need for change, the design that they had been introduced to was recognised to offer something of value, the accounts of which were familiar from existing accounts of the value of design and ‘design thinking’. To mention a few instances, they commented on:

- » Different modes of evidence gathering, producing new and different kinds of insight:
*“as a technique it was really successful in getting a group...into thinking about the future. It structured the responses they gave, so it made what they said more structured and more usable”*⁵
- » Reordering the hierarchy of evidence:
*“There are multiple considerations and it added more power and authority to some. It gives them a status they might not otherwise have. Like some of the softer things around user experience.”*⁶
- » Enabling more open thinking:
*“the people who normally would start by saying ‘that’ll never happen’ – it swept that out the way”*⁷
- » Engendering collaboration and buy-in:
*“although I probably could have predicted the outcomes we arrived at, the process was vital for getting buy-in from a larger group of stakeholders”*⁸

⁵ Interview, Department of Business Innovation and Skills, May 2015

⁶ Interview, Department of Work and Pensions, June 2015

⁷ Interview, Ministry of Justice, June 2015

⁸ Telephone interview, Department of Work and Pensions, May 2015

- » Reconfiguring relationships between people:
*“the primary impact is that senior people are now engaging with each other on a list of solutions... whilst there are still multiple hurdles to achieving policy change, there is now a very clear conversation going on”*⁹
- » Translating evidence and insight into ideas (for policies):
*“they came out with some very basic stuff that just would never have occurred to me... the ideas are not complex but they’re coming from an angle completely different to mine”*¹⁰

In these conversations, design was discussed primarily in terms of ‘tools’, ‘methods’, or ‘techniques’ that might be applied. This is partly to do with how Policy Lab has presented itself in order to encourage the adoption of its practices. But it reinforces the perception that all that needs to happen is for civil servants to pick up some new policymaking tools as they might a hammer or a screwdriver. The service Policy Lab provides is conceived of as ‘access to some techniques that weren’t within their skillsets’, rather than a paradigm shift in how government thinks about problems and its capacities to ‘solve’ them. Within the narrow view of traditional linear models of policy decision-making (such as the rational choice model), design can simply be read as a set of methods that generate a greater number of options from which to choose at a given point in the process. But it is also possible to see what Policy Lab is doing with design as generating an entirely different decision-making model for policy (Considine 2012).

So, what do our interviewees think? And if, as has been proposed within debates about design research practice (Dorst 2008), we expand our focus out from ‘the process’, to encompass object, actor and context, what might these interviews reveal beyond the critique of a set of design processes? In many cases, although interviewees made overt statements about the usefulness or not of Policy Lab’s tools, implicit in their answers was a suggestion that Policy Lab’s approach is challenging in a more fundamental way.

Whitehall policymaking culture

Imprinted on these conversations about design is the image of a powerful institutional culture, and a feature of all the texts is the conflict between this culture and the design ‘tools’ on offer: conflicts around what is considered to be knowledge, intelligence, and skilled practice, around the aesthetics of the institution, and around the nature of political relationships and timescales.

The qualities of the Whitehall policymaking community’s ‘culture’ emerge in the interviews in several ways. As an attention to hierarchy: people make overt statements about their ‘grade’¹¹ and the implications of that, and exhibit a general upwards-facing orientation. Information is constantly being filtered and delivered up through the hierarchy, with permission and decisions flowing back down in return. This is perhaps not surprising given the top-down nature of ministerial control of departments.

Conversations were peppered with the names of men: there is a tendency to refer to the very senior civil servants by first name only, indicating an assumption of familiarity with noteworthy and significant people. (By contrast, political figures are typically referred to by their placeholder title: ‘the minister’, ‘the PM’, ‘the chancellor’.) This raises a question about

⁹ Telephone interview, Department of Health, May 2015

¹⁰ Interview, HMRC, June 2015

¹¹ Civil servants’ seniority and position in the organisational hierarchy is denoted by numbered ‘grades’

the gendered nature of policymaking culture, and whether intelligence is performed here in gendered ways. The language certainly conveys an impression of some implicit notions of intelligence and skill, defined as individual and personal cleverness, quick-thinking, a facility with words and text, and the ability to mediate and navigate the vicissitudes of politics.

The following extract encapsulates several of these traits:

The policy profession also needs to be brilliant at the stuff that Jeremy is brilliant at – being one step ahead of the ministers, always being trusted, a brilliant mind, knowing how to commission some quick advice, all the classic Whitehall stuff. That stuff is immensely valuable... And we would be absolutely sunk without the Chris Martin, Jeremy Heywood¹² skills. Completely sunk. If the PM thought that Jeremy couldn't come up with the sorts of things that would give the Prime Minister the ability to stand up and say 'we'll crack immigration', then Jeremy loses his license to operate, and we all lose our license to operate.¹³

Notions of knowledge and intelligence

In 'How Institutions Think' Mary Douglas (1986) sets out an argument for 'the sociological dependence of all cognition', and so within the social milieu of the civil service we can assume there might be some common epistemological bases. As it emerges in these interviews, intelligence seems to be understood as individual brilliance, as the capacity of one person's brain – as opposed to embodied, contextual, situated, or social intelligence. The complexities of policymaking are only for the brightest sparks:

...bad policymaking... I've seen a couple of examples in the department I'm about to go to – a submission which is (by) someone reasonably clever but not very clever...¹⁴

The assumption here is that only if people are 'very' clever can they achieve the goal of good policymaking – the onus is very much on the capability of the individual. Knowledge comes about through description rather than acquaintance: through reviewing certain kinds of historical evidence or data, or understanding the range of potential solutions that are acceptable, or through the analytical and critical capacities of an individual, or occasionally asking a known expert – not through action or testing or immersion in an environment or asking a non-expert.

And she said 'the thing is, we've been working on this for ages but we've never thought about what the experience of those who used our service was. We've never done that.' With that sense of 'my god, how come we never did this?!'¹⁵

The answer to that question, 'how come we never did this?', is presumably that asking the 'man on the street' about their experience of a service simply isn't considered a relevant or useful thing to do, or a valid way of generating knowledge. And even when experts are involved, there are still only certain kinds of information considered robust enough to constitute 'evidence':

¹² Chris Martin, Director General, Prime Minister's Office, and Sir Jeremy Heywood, Cabinet Secretary and Head of the Civil Service

¹³ Interview, Cabinet Office, July 2015

¹⁴ Interview, Cabinet Office, July 2015

¹⁵ Interview, Cabinet Office, June 2015

*I struggle to see how ethnography and observational research on its own could possibly capture the richness that's out there in the data.*¹⁶

Although design ethnography as a research method for informing policy is understood as helpful in that it reveals new insights, it is also problematic for policymakers in that it isn't accepted as sufficiently representative, quantifiable, or reliable. The challenge for design in this context, then, is epistemological: of conflicting beliefs about how one might come to know things about the world, about what is considered a valid way of knowing. Designerly ways of knowing (Cross 2001), it seems, are rather different to policymaking ways of knowing.

Notions of skilled practice

Skilled practice in these interviews is characterised by accounts of manoeuvring and handling, of quashing ambiguity and providing certainty, rather than necessarily finding an appropriate solution to a problem.

*...if there is an answer, we go for it. Because that's the easiest thing to do. I could have presented a brilliant submission to a minister on inner city pregnancy, and had all the data to support it, and it might have been a great bit of work, and it's quick and it's neat – but it might have been entirely the wrong intervention.*¹⁷

This extract highlights two issues: the speed at which policymakers are encouraged to produce solutions, and the fact that sound ideas on their own are rarely enough – or even required – in politics. It is a mistake to assume that design might get itself license to operate simply by generating great ideas that stand a chance of working. As we will go on to discuss, the factors that influence the adoption of an idea are rarely to do with the quality of the idea itself. Civil servants are on the lookout for 'good ideas *we can land*'.

Problematically, some design methods implicitly ask civil servants to compromise (what they understand to be) their performance of professional competence:

*...you have to be very careful when you say to a Minister 'none of these things have worked before, we don't really know exactly what to do now, and we'll have to bring in other people to help us find a solution.' Because as an official you want to be able to give options and show that you know what you're doing. And actually being able to say 'we're in a space where there's a lot of ambiguity, and we're going to dwell in that ambiguity, and I want you to give me time to do that.' That's quite tricky.*¹⁸

Relations between the civil service and politicians are subject to some rather complex power dynamics, which makes it very difficult for either party to admit that they don't know what to do. The need to provide clarity and certainty, which is driven by the dynamics of politics, does not create an environment conducive to working in a designerly fashion, where one can 'sit back and think in a more reflective way', or 'probe-sense-respond'. In this way design as a tool in the policymaker's toolbox suffers the same fate as any other kind of evidence-generating activity:

¹⁶ Interview, Department for Work and Pensions, June 2015

¹⁷ Interview, Cabinet Office, July 2015

¹⁸ Interview, Ministry of Justice, June 2015

The generation of ideas on the back of the data? Well, as generally speaking we don't surround ourselves with data, I imagine that skill must be lacking.¹⁹

Aesthetic disruption

Although 'design thinking' has been accused of downplaying the importance of aesthetic judgment in the designers' skillset (Tonkinwise 2011, Brassett 2015), aesthetic disruption is a clear feature of these interactions with design. Design methods operate through a very different aesthetic – if by aesthetic we understand the manifestation of things in a sensate way (Gagliardi 1999). The traditional policymaking aesthetic is closely tied to words and text: the circulation of pieces of paper with words written on them, the act of sitting around tables in meetings with words on paper in front of them, the writing of ministerial submissions in a predefined format. Design operates in a less text-dependent way.

... (what) I found very interesting was the graphic, visual side of it, which is not civil service at all. I personally still operate by writing essays. It's about the only job under the sun that writing A Level essays is actually useful for.²⁰

Words are clearly felt to be reassuring evidence of analytical work having been done, of deep knowledge, and the passing and filtering of knowledge through text denotes a person's place in the hierarchy.

After this I'm going to a meeting to discuss some thorny issues, and we tackle it by producing a load of paper with tabs and words. That's what I'd expect for most policy meetings that I attend.²¹

The same interviewee joked that 'you know you've made it when your team makes you such a beautifully tabbed briefing'. Knowledge is managed through the production, ordering and reordering of text, and the more senior you are, the more stages of filtering and ordering have happened before a text reaches your desk.

The staging of meetings themselves reproduces hierarchies and particular ways of performing cleverness – such as the ability to (appear to) assimilate information rapidly, and be decisive:

That forum creates the mentality that you have to be quite focused and narrow-minded. There's a long agenda and you've got to get to action points.²²

One interviewee gave an account of a meeting where she had a very brief opportunity to make the case for a particular course of action to her seniors – not enough time in her view to be able to communicate sufficient information – and a questionable (in her view) decision was subsequently made. The format and structure of the meeting dictated the nature of the policy decision, rather than the other way around.

Design presents the challenge that there might be other ways of learning, negotiating and collaborating, unrelated to the production of texts. And by changing the physical and aesthetic configuration of people in relation to each other, and in relation to a common problem, it introduces a different social dynamic. This is both its potential to generate

¹⁹ Interview, Cabinet Office, July 2015

²⁰ Interview, HMRC, June 2015

²¹ Interview, Ministry of Justice, June 2015

²² Interview, Ministry of Justice, June 2015

different kinds of knowledge, different ideas, and to reconfigure relationships to become more productive. But so clearly challenging some established forms also puts it at risk of being rejected. This is compounded by the apparent superficiality, or non-seriousness, of some of its aesthetic modes:

I'll need to manage the situation quite carefully, to make sure they go 'slowly slowly catchy monkey' on them. Don't bring out the cartoons and lego straight away.²³

People whose work lives revolve around highly ordered meetings and texts, the need to appear quickly decisive, and to manage some incredibly challenging issues, can unsurprisingly see the 'playfulness' that design methods introduce as inappropriate.

The rhythms of politics

There are two further ways that bringing design into policymaking seems to be at odds with the forms of politics. The first is a timing issue – senior civil servants often have to react very quickly to changing situations, a mode of working that has led to a set of formulaic practices and patterns. Opening that up is often not welcome:

When there's a crisis, the immediate focus is on producing some advice, a handling plan, some legal analysis. You immediately go into product mode. It's hard to step back and think 'what are the different ways of addressing this? Is there another route we could be pursuing?' Because the machine needs to be fed and the machine likes linear things.²⁴

Second, is the more fundamental issue of democratic accountability. There are two aspects to this. Current practices exist within what is understood to be a legitimate political decision-making process (however flawed in reality), where a course of action is negotiated and decided through the enacting of politics in a more or less public arena. The behaviour and work of departments under ministers mirrors that playing out of priorities and decision-making; difficult conversations which can't necessarily be effaced:

The Policy Lab guys...(are) assuming that everybody is willing to participate in a collaborative creative process, whereas actually, with inter-departmental working that's often not the case. People sit there, and say nothing, and lock the conversation down... At the end of the day it stems from - what a lot of people would say are - healthy disagreements between ministers. And their strategic thinking about the direction of policy.²⁵

The perceived advantages of some design methods include engendering collaborative working – but in an agonistic relationship such as that which exists between departments and ministers who have differing views about the nature of, and appropriate response to, a problem, collaboration is not necessarily what either party is seeking to achieve. Design here needs a better account of what role it might play in mediating, rather than glossing over, political opposition.

And finally, it is evidently difficult for civil servants to tell an elected official that their problem definition and solution are 'wrong', particularly when those characterisations of a problem may well have been part of a party's manifesto promise. 'User research' and

²³ Interview, Cabinet Office, May 2015

²⁴ Interview, Ministry of Justice, June 2015

²⁵ Interview, Cabinet Office, May 2015

‘prototyping’ of new policies risk short-circuiting the traditional decision-making structure by circumventing the political arena. The most design can hope to do here is better ‘inform a discussion with ministers’:

We’re all about evidence-based policymaking. However the reality is sometimes it’s policy-based evidence making. You’ve got to be mindful that there is a predefined solution. And you are there to make it happen.²⁶

Most of these civil servant interviewees were clear that design – rather than promising ‘magic wand’ solutions – needs to mind its place in the hierarchy.

To draw some of these themes together, the implication of these texts is that the design practices Policy Lab is introducing are fundamentally challenging some existing notions of intelligence and knowledge (by positioning them as situated, embodied, social, contingent, experiential, etc), and the accepted ways of performing intelligence - and they are partly doing that by aesthetic means. They are also at odds at times with the demands and expectations of a ‘political’ institution. So notwithstanding the ability of these designerly methods to generate new understandings of problems, and new solution possibilities (Kimbell 2015), there are cultural and epistemological factors at play which will determine the extent to which these things are mobilised.

Designing in an unavoidably political context

As we can see in Table 1, the subject matter of the (social) policy challenges in question lands them squarely in reach of a governmentality-based critique (Foucault 1991, Miller and Rose 1988), through which we might perceive trends such as depoliticisation (Flinders 2014), libertarian paternalism (Jones et al 2010), and austerity narratives (Wren-Lewis 2015). The majority are concerned one way or another with the manipulation of behaviours, the mobilisation of ‘the subject’s capacity for action ... as a political strategy to secure the ends of government’ (McKee, 2009). And in some cases ‘the subject’ includes civil servants themselves. The ends of government, as is clear from the interviews, are currently strongly tied to an austerity narrative; saving money and resources, and achieving greater efficiencies:

Even if we did it better, and were more democratically accountable, and the solution was much more acceptable to the British public – that’s not really quantifiable.²⁷

It is arguable that the pressure to be accountable and frugal in the distribution of public money eclipses the wellbeing of citizens as a driving agenda – it is for this purpose rather than his or her own welfare that ‘the user’ is targeted as a focus of research. And so it is clearly possible to read design as being exploited (as so often) by a system, subordinated to its political aims (Dilnot 2014).

However one could make such critiques of any and all social policy tools in a neoliberal democracy (Swyngedouw 2005). And there are limits to a governmentality-led critique. In this case perhaps we could give more credit to the agency and motives of the practitioners in question, who (by the evidence of these interviews) are perfectly aware of the ethical difficulties of their terrain:

²⁶ Interview, Ministry of Justice, June 2015

²⁷ Interview, Ministry of Justice, June 2015

*Policy is a big word that covers a lot of things, the centre ground is in making difficult – sometimes impossible – trade-offs between multiple competing aims, with limited resources, in a political context.*²⁸

Our interest here is whether there are ethical or political questions for design (and designers) that are somehow different to the questions any reflective policy practitioners might ask themselves. If we accept the ‘silent, ordinary, fully routinised’ apolitical institutions of the civil service are, in fact, where politics and governmentality is daily enacted (Latour 2007, Stone 1988), do we expect more criticality of design than any other discipline? Does design, with its capacities to expedite solutions, to make new things knowable and therefore governable, have a special responsibility? At the very least, we cannot possibly continue to see design as a ‘neutral’ or value-free set of practices. The very act of defining a user involves political reasoning (Stone 1988, Wilkie and Michael 2009), and the notion of the singular ‘user’ itself belies a conception of ‘the social’ that (for example) presumes the existence of individual autonomy, and privileges the individual over the community. Along with other practitioner-academics, we are interested in the question of design’s ethical and critical preparedness for intervening in social and political contexts:

The deployment of Design Thinking in social issue domains such as poverty, health, and education, is increasingly widespread. There is an urgency for Design Studies to be critically evaluating these projects and showing strong leadership in terms of recommending certain approaches and resisting others. (Tonkinwise 2014)

Conclusion

Policy Lab’s work in the Whitehall policymaking and civil servant community is design nuanced to a specific context. Whilst the team members are a mix of experienced designers and civil servants, the lab itself is only a year old and continually developing its practices. Other studies of Policy Lab previously mentioned (Kimbell 2015, BOP Consulting) have focused on evaluation for improvement and efficacy. This account is intended to be more reflective and critical about what introducing design problematises in the institution. The next obvious step would be to compare this emergent design culture – grafted onto Whitehall – to design cultures in other administrative and political environments, and it is planned that further studies take a similar look at comparable contexts (in Scotland, for example). Looking across a number of design-in-policy practices should then lend itself to further exploration of these evolving design practices through a governmentality lens, deepening understanding of how design is being mobilised in strategies of governance.

Acknowledgements

We would like to thank the two anonymous reviewers of this paper for their helpful comments, and gratefully acknowledge support for this project from the UK Arts and Humanities Research Council as part of the Design Star PhD Consortium.

²⁸ Interview, Cabinet Office, June 2015

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Chaos generation managed through design thinking: A task model for the design professional

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Abstract

The task model presented here is a working vision for the design professional redirecting focus from the application of predefined project structures to a process of complex evaluation. The task model is developed through a hermeneutic analysis of the discourse applied by design professionals to their practice. The tasks identified provide both a new focus and direction to the value creation process, in which the design professional is engaged. The intention of this paper is to provide the professional practitioner with deeper insights into own design role and design agenda. It is suggested not to use standard processes, but rather focus on developing a set of design tasks for each unique project, where design thinking and methods are implemented in unique ways. Chaos generation through chaos management as *job to be done* by the design professional is the main argument of this paper.

KEYWORDS: design practice, task model, chaos generation, chaos management

Introduction to professional design practice

Today, the boundaries of design professionals have moved into the arena of *management and strategy* as a result of shifting societal and economical needs (Yee, Jefferies, & Tan, 2014), and design professionals are often employed by businesses and organizations in need of innovation or transformation. Designers are hired as problem solvers, where design thinking is applied in order to manage and solve complex organizational problems. The role of the designer has expanded, and the design professional now works as a *capacity builder* within client organizations in order to investigate and translate organizational complexity into design problems that can be solved by applying the design discipline and *designerly ways of knowing, thinking, and acting* (Cross, 2001).

The professional perspective on designers taken in this paper has been inspired by the work of Adams, Daly, Mann, and Dall’Alba (2011), where design thinking is framed as a *working*

synthesis for understanding “how professionals form and organise their knowledge and skills into a particular ‘professional-way-of-being’” (Adams et al., 2011, pp. 588). A professional-way-of-being a designer requires an embodied understanding, where the bodily presence is needed for the design professional to act and think:

The process of becoming professionals is always open-ended and incomplete. It entails developing and refining an embodied understanding of professional practice that integrates knowing, acting, and being in the world. This embodied understanding is not limited to individual cognition, then, but is embedded and enacted within the dynamic, intersubjective flow of activity that is professional practice. This unfolding professional way of being incorporates not only our knowing and how we act, but also who we are as professionals (Adams et al., 2011, p. 590).

Professional practice is a necessary workspace for the designer in order to develop as a professional. It is within professional practice that the demand for the designer and design thinking has developed, and it will be within the professional practice that the designer keeps developing a professional-way-of-being.

The task model presented in this paper introduces a vision for the future design professional. It is proposed that the designer has begun a transition into chaos manager, where the client hires the design professional to investigate and reframe the propositions of the design, innovation or transformation project. In this professional setting, the design job is to challenge and disrupt client assumptions in order to construct an unambiguous solution space for the project through the strategic lens of design thinking.

Design thinking as professional approach

For this paper, design thinking is used as “an umbrella term” to encompass the interdisciplinary area of service design that is often hard to define (Wetter-Edman, 2014), as “there is no common definition of service design” (Stickdorn & Schneider, 2012). Professional practitioners of service design take a dynamic approach to the design discipline, which requires a dynamic language that does not restrict the application of the service design principles or way of thinking (Stickdorn & Schneider, 2012).

The research conducted has investigated the collaborative relationship between a digital design agency and its client organizations, where design thinking is applied by the design professionals to client organizations in the course of design projects aiming at finding solutions to organizational problems. The purpose of the process is finding a valuable outcome or identifying future potential (Kimbell, 2011). The Satir Change Process Model (Emery, 1998, p. 1) is used to frame the collaborative process between the agency and the client organisation, where the initial design phase of the project is seen as *the chaos stage*. Here, the collaborative relationship with the design agency presents itself to the client as “unfamiliar territory where life is unpredictable” (Emery, 1998). The design project takes place as a value creation process working towards a valuable outcome named *the transforming idea* or “a new understanding of what to do” (Emery, 1998).

This paper presents research on the application and implementation of design thinking as processes of chaos generation through chaos management in organizational settings. The initial chaos phase kicks off as an *ill-defined process* of working towards a problem definition, from where the requirements of a successful solution can be identified (Rittel & Webber, 1973) (Buchanan, 1992). The initial project outset equals a stage of chaos potential to the design professional, where the designer will apply design thinking in order to frame the

organizational problem and visualise the essential characteristics of its complexity (Lawson, 1990).

Professional design practice requires the designer and the client organization to learn from each other, hence the design project is set up as a collaborative partnership, where the method of knowledge exchange between the designer and the client helps the design professional to design strategically (Ballie & Prior, 2014). The designer is seen as a new knowledge source that needs to connect to prior knowledge of the client as well as to be complementary to it (Acklin, Cruickshank, & Evans, 2012). Thus, the client needs to be engaged as a source of organizational knowledge.

An emotional connection is important, as it builds trust, which enables knowledge exchange between the design professional and the client organization, seen as users of knowledge (Guseynova, 2012). An open relationship between the design professional and the client requires the principles of participatory design (PD), where the establishment of *mutual learning* is an important aspect of the project (Eriksen, 2014). PD requires both the design professional and the client to be present and take part in the design work. Kensing and Blomberg has outlined three basic requirements for participation: 1) access to relevant information, 2) the possibility of taking an independent position on the problem, and 3) participation in decision making (1998, p. 172).

The design objectives of PD are proposed as prerequisites to reach a valuable outcome of the collaborative design project, and they have been used as outset for the hermeneutic analysis. For the analysis, the PD requirement have been framed as following: 1) gaining access to prior and new knowledge, 2) being empowered as an independent design professional (intrinsic motivation), and 3) having the opportunity to participate in decision making together with the client (extrinsic motivation). The identified design objectives have shaped the framework of the task model and thus, the working vision presented in this paper.

Method

The continuous development of a professional-way-of-being a designer requires an embodied presence in the *professional practice*, as described above. A design agency represents a professional work environment, and thus a digital design agency was chosen as the situated context for this research. The initial research question was framed as following: “How can the design process of the individual design professional be understood, when the design professional works towards a transforming idea as valuable outcome for a client organization?” An updated research question is presented in the conclusion, as a consequence of the research findings, and as a suggestion for future work.

This paper focuses on the internal design performance, though the embodied presence in a project context is stressed as a requirement to become and develop as a design professional. This study did not cover the external part but focused on the internal orientation of being, thinking and acting as a designer within the professional practice. Four interviewees were chosen based on their significance to the initial design phase, *the chaos stage*:

- a) Head of UX (UX designer) – she is in charge of the research approach and “process strategy” when a new client project kicks off.

- b) Senior Information Architect (IA designer) – he is in charge of the “heavier” technical client projects that concerns the information architecture from a system perspective.
- c) Engagement Manager – he works as the primary contact person for the larger client organizations and is in charge of project execution as “mini product owner”.
- d) Chief Technical Officer (CTO) – he is in charge of the initial client meetings and the scoping of the client project, leading up to signing an agreement on working together.

All four interviews were transcribed. Significant quotes were highlighted, by focusing on the explicit wording, as expressed by each individual. The themes were then structured around this particular wording. “Designer role” covered quotes concerning “value to the designer”, as expressed by “experience, expertise, principles, and domain knowledge”. “Design senses” covered quotes including words such as “see, say, talk, tell, listen, sketch, feel, understand, and impressions”. “Link building” covered quotes concerning design methods applied to gain access and engage the client stakeholders, expressed as “create legitimacy, challenge, and give examples”. “Project role” covered quotes concerning the “success of the client project”, as expressed by “success, agenda, and scope”. Each theme identified represents an overall design objective that all four professionals share.

Initial research results

This section presents the findings from the hermeneutic analysis of the qualitative research interviews. The result in table 1 equals the design objectives for each professional, when working on a design process as part of a client project. The individual set of design objectives were found by iterating on the thematic quotes through affinity diagrams.

	Designer role (domain)	Design senses (create chaos)	Link building (access)	Project role (priority)
UX designer	Create new user perspectives	Experiencing the user domain	Experiment with the user	User involvement
IA designer	Create new system perspectives	Experiencing the system domain	Experiment with the data	Visual concept
Engagement manager	Create a vision for the project	Client dialogue	Client interaction	Stakeholder management
CTO	Create a project idea	Client dialogue	Client interaction	Project structure

Table 1 sums up the individual set of design objectives as expressed by each design professional.

“Designer role” represents “value to the designer”, i.e. the intrinsic design objective of each design professional and his/her design domain – this objective is called *empower the design domain* in the task model. “Design senses” represents the design objective of the professional, when engaging the senses in the course of the design process – this objective is called

intentional chaos generation in the task model. “Link building” represents the design objective of the methods applied by the professional in order to enable the individual “designer role” and “project role” – this objective is called *access to the client organization* in the task model. “Project role” represents “success to the project”, i.e. the extrinsic design objective of each design professional, when working together with a client on a project – this objective is called *prioritize the design decisions* in the task model.

Observing the different design objectives across table 1 made it clear that though the overall design objectives are the same, the individual approach varies between professional roles. This pointed towards a design process that pays attention to the overall objectives rather than individual objectives concerning the practical execution. The result is a task oriented design process model that collects all four professional roles within the scope of overall design objectives, framed as individual tasks. The final result in table 1 has inspired the tasks and shaped the task model presented below.

A task model

The task model presented in this paper is a visual illustration of the identified professional design objectives, which include: 1) access to client organization, 2) empower the design domain, and 3) prioritize the design decisions. A fourth objective has been identified as a further result of the insights generated, 4) intentional chaos generation. These objectives have been inspired from the PD requirements presented in the introduction and the thematic quotes found through the hermeneutic analysis.

The task model in figure 1 represents the work process of a design professional, when working through the initial and chaotic phase of a client project. The process begins at the project outset and is oriented towards the end goal of the designer, here defined as the *job to be done* (JTBD).

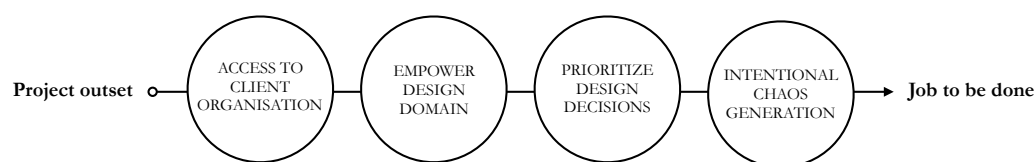


Figure 1 shows the task model for design professionals. The four design objectives provide guidance, when working from the project outset towards the *job to be done*.

JTBD is a theoretical concept first introduced by Christensen, Anthony, Berstell, and Nitterhouse (2007) and further developed by Osterwalder, Pigneur, Bernarda, Smith, and Papadakos in their book *Value Proposition Design* (2014). The job that needs to be done equals the fundamental problem that needs to be resolved, or finding the transforming idea. To the designer this means, that the *job to be done* is the end goal of working on a design project for a client organization.

Job to be done sets the direction of the project and guides the design professional towards own design role and own design agenda within each unique design project as this is not always clear initially. The design role and the design agenda develop within the scope of the professional practice, and within the scope of each design project. When seen through the intended framework of the task model, the end goal of the design professional is to investigate and deconstruct the organizational problem, while challenging and disrupting

client assumptions. This will help the design professional to construct a solution space for the design project, which equals a valuable outcome and transformation potential to the client organization.

The visual illustration of the design objectives have been inspired by the task model introduced to user experience designers by Caddick and Cable (2011). The idea of the task model in figure 1 is to visualise and emphasize the design requirements of the collaborative partnership between the design professional and the client, where the required steps of *mutual learning* have been exemplified and highlighted as objectives set as project tasks. Specific tasks provide a strategic approach to the initial phase of a design project and guide the design professional through the complexities of the organizational problem that needs investigation. The tasks set the direction towards the end goal and clarify the role and agenda of the professional practitioner, when design thinking is applied to a project and implemented in the client organization. Subsequently, each of the four required tasks will be discussed in detail.

Task: access to the client organization

The first design task of the design professional is to gain *access to the client organization*, which refers back to the coding theme “link building”. Here, the designer is considered a researcher that needs to gain access to prior knowledge of the client as it feeds the design work carried out by the design professional. The client needs to be engaged as a knowledge user that can inform the designer about the organizational problem, which is required in the initial project phase. Access to organizational information is a prerequisite for the professional practitioner to investigate and reframe the propositions of the design project. However, organizational information is often considered sensitive by the client organization, and therefore access requires an emotional connection and trust between the designer and the client. This is where the design work of the Engagement Manager and the CTO becomes crucial for the design professionals to reach the end goal and a valuable outcome.

The Engagement Manager works to become a trusted partner of the client organization, which requires spending lots of time with the client and the relevant stakeholders. Trust gives access to the right people and the right areas of the organization, which provides the workspace that the design professionals need to inform the design project and shape the design process:

When we first hit them, I remember, I was not allowed to have documents handed over, I was not allowed up the building because all external meetings were held on the ground floor, and lots and lots of processes – and all this is allowed now. Most days I sit out there and work with the people that I do the projects with.

Spending time with the client and organizational stakeholders is an important part of the project, as access to prior knowledge of the client is required to set the project scope and project structures. This is where the work of the CTO becomes important. He works towards identifying the right people on the client side, the real decision makers:

You keep getting wiser through a project. One thing is to map some people in an organizational diagram; another thing is to figure out who has the real power. It is not necessarily the one with the highest rank. It can be someone who has been there a long time, or who knows the director. It could be completely different things that play in, things you cannot read out of an organizational diagram – this can end up being really important, both to the organization and to us.

“Access to the right people in the client organization” means that the design professional gains access to prior knowledge about the organizational problem. The right people are the knowledge users that need to be engaged in order to access the organizational thoughts behind the design project. This information is required for the professionals to shape their work processes and adjust their design agendas within the scope of the project. Organizational information is needed to set the project direction aiming at the end goal of creating a valuable outcome.

Task: empower the design domain

The second design task of the design professional is to *empower the design domain*, which refers back to the coding theme “designer role”. Here, the designer works as a *capacity builder* that needs to build up a deeper understanding of the design domain in the client organization. To the client organization, this means both a deeper understanding of the design domain of the organizational problem and a deeper understanding of the design domain that the design professional has been hired to represent.

When the UX designer is assigned to a client project, she works to represent the design domain of user-centred design with a strong focus on user research. Her design work is oriented towards user empowerment, where user inclusion is considered an important method. User inclusion is used to generate knowledge that will increase the client’s understanding of user needs, which is required to reframe the problem and identify the transformation potential of a solution space that proposes user value. She refers to it as providing a new business perspective or “taking a trip in the helicopter and seeing it all from a different perspective”.

When the IA designer is assigned to a client project, he works to represent the design domain of the user experience within the IT systems of the client organization. He often experiences that the client’s understanding of the problem is limited to the logic of the existing structures, and therefore it is important for him to challenge the structures of these IT systems. As he explains:

If they do not feel challenged, they are getting the solution they are asking for, and that is not what they are asking for – or, they do not always ask for what they really want.

The IA designer uses the perspective of the user experience to reframe the existing IT system, challenge existing assumptions, and make the client see the technology and its logic in a new way.

A better understanding of the design domain provides a better outset for knowledge exchange between the designer and the client, which is required to find common ground in the project. Empowerment of the included design domain focuses on both the client project and the client organization by reframing the problem and presenting new perspectives for the solution space that needs to be identified.

To *empower the design domain* means that the design professional works as a new knowledge source that connects to prior knowledge of the client organizations and complements it by translating own professional design domain into organizational discourse. Hereby, the designer creates a breeding ground for the design domain to exist and evolve within the organizational context of the client.

Task: prioritize the design decisions

The third design task of the design professional is to *prioritize the design decisions*, which refers back to the coding theme “project role”. Here, the designer works together with the client in order to reframe and scope the propositions of the design project. The project takes place as a collaborative partnership, where the process of *mutual learning* works towards constructing an unambiguous solution space through the design methods of the professional practitioner. The professional design work provides unique perspectives on the design project, which will reframe the organizational problem, and enable the client to see the structures of the future transformation potential.

The UX designer orients herself and her design work through the perspective of the user. She needs to collect information from the users through user research, which helps her to see new meanings of the design domain and of the client project. These user insights are then communicated to the client through presentations or client workshops before starting the process of prioritizing:

We do this priority exercise, “what is realistic”, and “what do we strive for”, held up against each other. So this always happens at the end of the initial phase, a scoping exercise.

The UX design work becomes the foundation of a user-centred dialogue between the UX professional and the client, which builds a user-centred narrative around the organizational problem and the future solution space.

The IA designer orients himself and his design work through the perspective of the user experience, which he applies to the technical requirements of the client’s IT systems. Often, he has to remind the client that user-centred technology is about improving the user experience and not just the technical specifications of the technical domain. The IA professional makes decisions for the conceptual design and then presents the technical design priorities to the client:

Well, we are the ones that have to make the decision, which technical solution will it become [...] if you present too many options for the client to choose from, then they won’t choose anything.

The client is not always included in the decision-making, as the process of setting the design priorities becomes too complex to the client. Therefore, the IA designer prioritizes the structures of the conceptual solution space, though the client will still need to approve the design decisions made by the IA designer.

To *prioritize the design decisions* made during a design project means that the design professional provides new perspectives to the organizational problem, which enables the client to make informed decisions. The design work of the professionals acts as a new knowledge source, which complements the prior knowledge of the client organization. The new perspectives presented to the client has been prioritized and scoped according to the design agenda of the professional practitioner, which stresses the importance of the professionals being aware of own design role.

Task: intentional chaos generation

The fourth design task of the design professional is *intentional chaos generation*, which refers back to the coding theme “design senses”. This task represents an additional design objective to the three PD objectives identified in the beginning of this paper, and has been identified

through the hermeneutic analysis of this research. Chaos generation should be understood as the intentional movement of project boundaries, where the problem situation is deconstructed and disassociated from the current design context. The intention of generating chaos is to detach the client from the original assumptions in order to create new organizational perspectives. Reframing the organizational problem is often required to guide the client towards new insight or “clear-sightedness”. The design professional uses deliberate and intentional chaos generation in order to both deconstruct and reconstruct the client’s perspective, while experiencing the problem first-hand as a new knowledge source.

Chaos generation is applied to the organizational problem in order to investigate prior knowledge of the organization. This requires the design professional to engage the organizational stakeholders as knowledge sources and tap into their existing organizational knowledge as a project resource. Design thinking is applied throughout the initial phase of the design project in order to connect to the users as a knowledge source and translate their knowledge into a shared project discourse, which provides new perspectives on the organizational problem. Here, the design professional works as a “translator”, where prior knowledge is reframed through the lens of design thinking and introduced as new constructs for the solution space. This brings the discussion back to what it means to act and think as a design professional:

[...] Not just knowledge and skill progression but how learning to become a designer involves ‘working in a different way’ such as different ways of looking at problematic situations, and provide insight into puzzling complexities such as how designers can simultaneously display the behavior of a novice in some parts of design work, while also displaying behaviors that are more characteristic of higher levels of expertise (Adams et al., 2011, p. 589).

The collaborative partnership between the designer and the client provides the workspace for the professional practitioner to *work in a different way* and act as a *novice* within the scope of the project. The design professional acts a novice in order to gather information as a new knowledge source, while simultaneously thinking as a design expert about how to apply design thinking throughout the design process.

To the UX designer intentional chaos generation means applying UX research methods that includes and engages the user. She engages with the users as a *novice* that needs to learn more about the organization and the problem. As she explains, “we need to understand the problem in order to see the potential as creative experts”. The UX professional needs to collect user insights as a design novice in order to construct the solution space as a UX design expert. “It means everything, to be inspired and get the (client) domain under the skin, being able to understand the real problems”, the UX designer says. She adjusts her methods along the way according to the scope of the design project, and also the budget of the client.

The approach taken by the UX professional exemplifies that the design project is a collaborative relationship that requires mutual engagement from both the design professional and the client organization. Implementation of design thinking requires the design professional to work with the client in order to understand the multi-level and multi-stakeholder processes of the organization (Acklin et al., 2012). Intentional chaos enables the designer to investigate the design situation, while learning about the organizational problem, and also trying to move the client in some direction. It is a work process, which requires continuously evaluation of the situation and the complexities that it presents to the professional practitioner.

A process of complex evaluation

The task model represents a process of *complex evaluation*, where the designer has to figure out how to navigate through the initial phase of the project while resolving the identified design tasks. A complex evaluation means that the design professional is required to attend to all or some design objectives simultaneously, as there is no order given (Caddick & Cable, 2011). The tasks cannot be set as consecutive steps by the designer but need to be resolved through collaboration with the stakeholders. This relationship requires mutual engagement through an emotional connection, which cannot always be predicted and planned for.

The tasks are not directly related, however they are bound together and informed together through the *mutual learning* of the designer and the client. This knowledge sharing and knowledge generation within the project happens through intentional chaos, as described above, where new perspectives from a deconstructed problem provide new perspectives for the construction of a solution. The knowledge gained through chaos informs the design professional and helps to solve the tasks of *empowering the design domain* and *prioritizing the design decisions*.

Chaos generation happens in a “loop” of intentional dialogue and interaction between the designer and the stakeholders that are engaged continuously, where chaos is initiated intentionally by applying the design methods and the design work of the professional. A prerequisite for being able to generate chaos is having *access to the client organization* and having access to the prior knowledge of the organizational stakeholders. This work process suggests that the order of professional tasks introduced in figure 1 looks more like the iterated task model presented in figure 2.

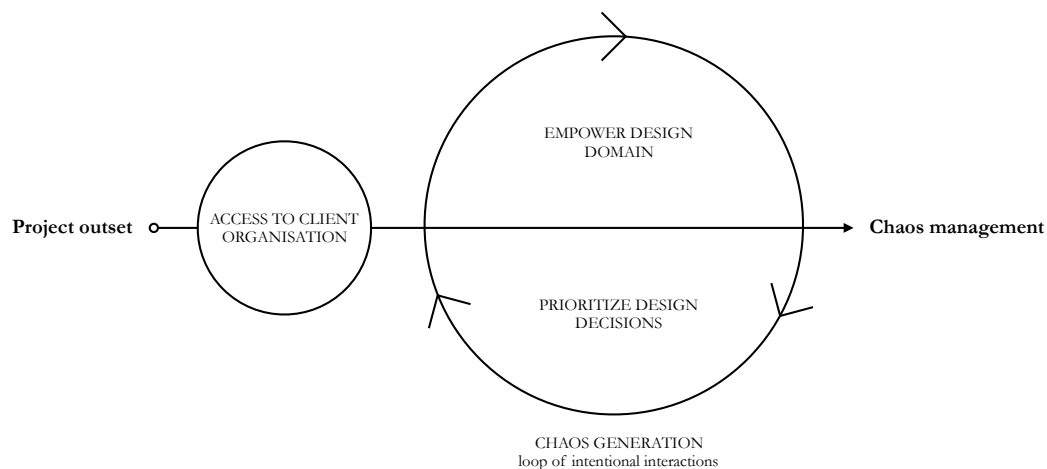


Figure 2 shows the iterated task model for design professionals, where the *job to be done* equals chaos management through a process of complex evaluation.

The complexities of a design project require the professional practitioner to take on the role as task manager, where chaos management is the primary *job to be done*. As task manager, the design professional needs to gain *access to the client organization* through an emotional connection, which provides a legitimate workspace for the designer to think and act as a designer. Hereafter, the job of the designer is to generate and manage intentional chaos, where the organizational stakeholders are engaged as users in order to inform the designer both as a novice and as an expert. Chaos management works to transform “insights generated from chaos” into new perspectives that work to *empower the design domain* and *prioritize the design decisions* for the client project.

Job to be done: chaos generation through chaos management

It is the finding of this paper that chaos management, as the *job to be done* by the design professional, sets the direction of the project and guides the designer towards own design role and own design agenda within each unique design project.

Chaos management is an essential aspect of the professional design practice, which implies that it is not enough to simply generate chaos. Chaos generation by itself would result in a fixed situation, where the problem stays deconstructed and detached from the project context. Chaos generation is introduced through chaos management, which entails both the introduction of chaotic processes and the reinstitution of new working orders as a consequence.

Chaos can be introduced and managed in a number of ways: through the introduction of new concepts; through directly challenging existing assumptions; through the introduction of alternative models for business, organization and practice; through new technologies; through new methods, and so on. Chaos management requires the designer to uncover meaningful ways to introduce chaos into the organizational understanding of the client context. The main purpose is to create a project context, where the client starts to deconstruct existing assumptions and construct new perspectives for the solution. The IA designer gives an example of how he works to introduce chaos by challenging the existing assumptions of the client:

Typically, the client's "specification of requirements" is delivered in an Excel document, where I need to see them more as clusters of requirements in terms of a "user story", and so I map the requirements in clusters in order to see which ones belong together. Then it is easier to break down the structures of the client in terms of their understanding of the website [...] but the input has to come from the client.

As the IA professional explains, the input for the work process comes from the client. Chaos is introduced to the prior knowledge of the client organization, which generates new insights through the design work of the professional. The work process takes place as knowledge generation in order to create diffusion within the client context. The designer works to empower multiple stakeholder domains of the organization, as described above under the task *empower the design domain*. This means that the designer needs to translate the different needs and the different languages of the client stakeholders in order to scope the project and construct a solution space that equals common ground for the people involved:

Service design projects should be perceived holistically as a process of knowledge generation and diffusion in a social context, involving a complex network of stakeholders. In our case studies the importance of managing this process via the facilitator role was frequently discussed, with designers recognized as being the "translator between all other parties...to bridge the different languages of the disciplines and to find common ground" (Yee et al., 2014, p. 71).

The end goal of chaos management is achieved by finding common ground. This requires translation of the needs expressed by the involved stakeholders throughout the working process of the project. Chaos is applied to the client as a method for intentional interaction, which generates input for the translation mediated by the design professional. Design thinking is used by the designer to evaluate methods and processes for intentional chaos generation applied to the client organization, which makes design thinking a management tool for the professional practitioner. Design thinking is implemented as a strategic tool for the designer to 1) identify the right conditions for chaos generation within the client context, and 2) manage the work process of turning the chaos input into a valuable outcome for the client project by *empowering the design domain* and *prioritizing the design decisions*.

The current use of design thinking are highlighting a professional management shift due to traditional management tools not being able to handle the complexities of new technical requirements. The professional boundaries of the design practitioner are shifting as demanded by the multi-level and multi-stakeholder processes of the client organization. The *job to be done* by the design professional is to mediate and translate the different domains of the client into a shared understanding of the problem and a new perspective on the innovation potential. The application of chaos managed by *designerly ways of knowing, thinking, and acting* generates the input for new perspectives, and thus chaos should be considered a resource for innovation managed by the designer as chaos manager; working to create a clear sight on a complex problem through the strategic implementation of design thinking.

Conclusion

The task model presented in this paper is a visual illustration of the identified professional design objectives as proposed by the PD tradition initially. Here, the objectives have been iterated and modified according to the empirical findings of the hermeneutic analysis conducted. The design objectives presented in the task model include: 1) access to client organization, 2) empower the design domain, and 3) prioritize the design decisions. A fourth objective has been identified as a further result of the insights generated, 4) intentional chaos generation. The model introduces the objectives as tasks that provide guidance in order to reach the end goal of a client project.

The tasks are not directly related, however they are bound together and informed together through the collaborative partnership of the designer and the client. This knowledge sharing and knowledge generation within the project happens through a loop of *intentional chaos generation*, which informs the design professional and helps to solve the tasks of *empowering the design domain* and *prioritizing the design decisions*. A prerequisite for being able to generate chaos is having *access to the client organization* and having access to the prior knowledge of the organizational stakeholders. The flow of all four tasks presents themselves to the designer as a process of *complex evaluation*.

The complexities of a design project require the professional practitioner to take on the role as task manager, where chaos management is the primary *job to be done*. The application of chaos managed by design thinking generates the input for new perspectives, and thus chaos should be considered a resource for innovation managed by the designer as chaos manager. A suggestion for future work is to gain a better understanding of chaos generation, and the loop of intentional interaction, by looking into “what happens between the designer and the client in the loop of chaos, when new insights are found, seen from the client’s perspective?”

This paper focuses on the internal design process of the professional practitioner. The task model presented introduces a working vision for the future professional design practice, where design thinking is implemented as a strategic tool to manage the complex work process of the professional designer. This professional perspective applies to design practitioners working within the scope of unique design projects in a collaborative partnership with a client organization.

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Delightful or efficient? How service recovery affects customer experience

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Abstract

While some researchers and practitioners argue for the benefit of services that delight customers, others argue that service providers rather should focus on efficient service delivery. We present a study on customer experience in the context of service recovery to show how these diverging perspectives may be reconciled. The study includes 312 customers who had ordered a home network connection from a broadband service provider; 167 of which had initiated service recovery by calling customer service. Contrary to what may be expected from an efficiency-perspective, customers who experienced well-executed service recovery tended to be more likely to recommend the service provider than those who did not need service recovery. These customers often reported customer service as decisive for their assessment of the service provider, the most enthusiastic describing it as "pleasant", "great", or "best". However, as may be expected from an efficiency-perspective, customers receiving less-than-optimal service recovery were less likely to recommend the service provider than customers not in need of service recovery. We conclude that, while efficient service delivery indeed is important, the positive effect of well-executed service recovery cannot be explained by efficiency alone.

KEYWORDS: Customer experience, service recovery, service design

Introduction

"Stop trying to delight your customers" is the provoking call made by Dixon et al. (2010) in a *Harvard Business Review* article. Here, they argue that companies' systematic attempts to delight their customers do not pay off. Rather, companies should prioritize lowering customer effort and avoiding negative experiences, in particular because customers' negative experiences are more likely to affect customer loyalty and word of mouth than are positive experiences.

The conclusions of Dixon et al. (2010) are potentially disturbing to researchers and practitioners of service design, as they seemingly go against key assumptions of the service design literature. In particular, the primacy of customer experience seems to be challenged. Blindly accepting service efficiency as a goal in itself, without considering service efficiency as one of several means towards delightful customer experiences, may lead service providers to overlook opportunities for improvements in service delivery. Furthermore, as shown in this paper, less efficient service processes may induce even better total customer experiences than more efficient ones.

Dixon et al. draw their conclusions from studies of customer service and service recovery. By "service recovery", we mean the mitigating efforts of a service provider in response to unexpected events during a service process. To understand how the perspective of Dixon et al. may be reconciled with current service design knowledge, we present a study of service recovery as part of a larger service process. In particular, we study how service recovery affects customer experience.

The study contributes insight into how service efficiency may interplay with other factors for delightful customer experiences. We find that the service process requiring the least customer effort does not always generate the best experience. Furthermore, the study contributes new understanding of why service recovery, when well-executed, may enhance customer experience.

The paper is structured as follows. First, we present the study background. Then we present our research question, hypotheses, study method, and results. Finally, we discuss the implications of our findings for the field of service design, study limitations, and future research.

Background

To position the study, we present background on the status of customer experience in service design and how customer experience may be enhanced through service recovery.

Customer experience in service design

Customer experience is one of the truly central concepts in service design. Polaine et al. (2013) notes that the notion of experience "dominates the discussion of service design" (p. 131). Meroni and Sangiorgi (2011) argue that "understanding experience is crucial for design for services" (p. 38). Teixeira et al. (2012) describe service design as a way to orchestrate service elements and processes to "help customers co-create their desired experiences" (p. 363).

Customer experience is seen as a competitive advantage not only for experiential services, such as amusement parks or vacation hotels, but also for more mundane commercial services such as banking, telecom, and insurance (Rawson et al., 2013), and government services (Parker & Heapy, 2006). Customer experience is regarded as critical to the customer value proposition (Zomerdijk & Voss, 2010) and, therefore, is closely related to customer loyalty (Berry et al., 2002), customer recommendation behaviour (Temkin, 2009), and the service provider's economic revenue (Pine & Gilmore, 1998).

Though one cannot design an experience as such, service design is argued to concern design *for* customer experience. In particular, as argued by Polaine et al. (2013), the role of service design is to unite the experiential aspects of service provision and other value-creating aspects such as effective and efficient service provision.

The findings of Dixon et al. (2010) are challenging to service design, as they imply that concern for the experiential aspect of service provision is less fruitful than concern for service efficiency. On the basis of data from 75000 customers across countries and service providers, they find that inefficient service provision does more harm to the customer experience than efforts to delight do good. For example, they find that, while only a quarter of the customers that had positive service experiences told others about it, almost half the customers that had negative service interactions did so. The area of study for Dixon et al. is interactions between customer centres and customers through non-face-to-face channels, but they go far in making their claims general to any kind of service interactions between a company and its customers, be it through self-service solutions or service personnel. Dixon et al. conclude that avoiding negative experiences is far more important than working towards delightful experiences.

Enhancing customer experience through service recovery?

The aspect of service design addressed by Dixon et al. is, in fact, that of service recovery. Curiously, service recovery has not received much attention at the ServDes conferences. However, it is amply studied within the field of service research (De Matos et al., 2007), and is also discussed as a key aspect of service design (Goldstein et al., 2002). Due to the complexity of many services and the increasing likelihood of service failure, service recovery is an important topic in service research (De Matos et al., 2007; Tax & Brown, 1998).

Service recovery is typically addressed in terms of customer expectations (Andreassen, 2000) and customers' justice perceptions (Hocutt et al., 2006). Customers' emotional or affective responses to service recovery are less studied (Gustafsson, 2009), though it has been shown how positive and negative emotions affect recovery satisfaction (Schoefer, 2008).

What makes service recovery particularly interesting as a subject of service design is the potential service recovery paradox, that is, the notion that customers who experience service failure followed by adequate service recovery are more satisfied with the service provider than customers who experience no service failure at all. However, service recovery is unlikely to have this paradoxical effect if the service provider provides inadequate recovery or is experienced to repeatedly fail the customer (Maxham & Netemeyer, 2002).

The service design paradox has been explained by reference to customer expectations, where service recovery exceeding customer expectations may give this beneficial effect (De Matos et al., 2007). However, the role of empathy and emotion has also been discussed as causes for the service recovery paradox; in particular, the induction of positive emotions during service recovery (Schoefer, 2008) or the experience of meeting a courteous and caring employee (Hocutt et al., 2006), given to customers in a vulnerable situation has been discussed as factors that may contribute to the service recovery paradox.

Studying the role of customer experience in service recovery may help us understand how to reconcile the findings of Dixon et al., with their emphasis on service efficiency and reduction in customer effort, with the notion of customer experience as a key service design concept.

Research questions and hypotheses

Based on the above background, we formulate the following research questions:

How and why does service recovery affect the customer experience of a service process? In particular, how does service efficiency interplay with other factors for delightful customer experiences?

On the basis of previous research in support of the service recovery paradox (De Matos et al., 2007; Hocutt et al., 2006), we can postulate the hypothesis that an excellent service recovery may contribute positively to the total customer experience of the larger service process. That is, customers who experience well-executed service recovery may have a better experience than customers with no need for service recovery. Such a strengthening of customer experience due to excellent service recovery is not to be expected from the conclusions of Dixon et al. (2010), though it may well be in line with the intuitions of service designers.

Furthermore, we hypothesize that less-than-optimal service recovery may negatively affect the total customer experience of the larger service process. This hypothesis is fully in line with the findings of Dixon et al., as inefficient service recovery typically can be assumed to involve higher levels of customer effort than what is required for a service process with no need for such recovery.

Method

To investigate how and why service recovery affects customer experience, we conducted a questionnaire study among customers that had completed a service process as customers of a particular broadband service provider, a major telecom operator in Norway. In this method section, we first present the service process as our study context. Then we present our approach to participant recruitment and data collection and, finally, describe our approach to data analysis.

The study context

We studied a service process in which customers order a broadband home network connection and have it installed. The service process occurs over a substantial period of time, typically from two to four weeks, and includes multiple touchpoints in different channels, including the following:

- (a) Some customers may call customer service or visit the operator's self-service website as part of their pre-order research process.
- (b) The customers place their order either by calling customer service or through the operator's self-service website.
- (c) The customers receive receipts, contracts, and invoices by separate SMSs, emails, and traditional mails.
- (d) The customers receive necessary technical equipment (e.g. a router) by a goods carrier.
- (e) Some customers may have a technical support person visit their home to install the broadband connection (additional offer).
- (f) Some customers may call customer service for support after placing their order.

This service process is highly suitable for the purposes of this study for several reasons. First, it is a service process of high importance to customers; a broadband connection is exceedingly important to peoples' lives and, hence, can be expected to have high attention by the study participants. Second, while ordering broadband home network access is not a typical experiential service, customer experience is considered a key means of differentiation between broadband service providers. Third, the service process represents a blend of self-service and manual customer service that is seen to an increasing degree in the service sector. In this case, a large proportion of customers prefer to order their broadband connection through direct contact with customer service, rather than through a self-service website; at the same time, most customers prefer to install the broadband connection themselves without the help of a service person. Fourth, due to the complexity of broadband home networks where the customers' own technical equipment is to work together with technical equipment provided by the operator, issues are likely to appear during installation; hence, service recovery will be required for a substantial proportion of the study participants.

Participant recruitment and data collection

We invited all new customers of the broadband service provider in the period May 1 – June 20, 2014 to participate in the study; in total, 2939 customers were invited. Invitations were distributed by email, and participants responded through a web-based questionnaire. As an incentive, three gift cards (valued at approximately 120 Euro) were set up as lottery prizes among the participants.

Customer experience was measured through the Net Promoter Score (NPS) question (Reichheld, 2003), worded as follows: "On the basis of your experience concerning the ordering of broadband from [the broadband service provider], how likely are you to recommend [the broadband service provider] to your family, friends, and colleagues?". The participants were asked to respond with a score from 0 (not at all likely) to 10 (extremely likely). Though actually a measure of customer's behavioural intention rather than experience (Reichheld, 2003; Keiningham et al., 2007), NPS is now established as one of the most used measures of customer experience (Temkin, 2014). NPS has also been found to be highly correlated with other measures associated with customer experience such as *satisfaction* and *word of mouth* (Pollack & Alexandrov, 2013).

One particular strength of NPS as a measure of customer experience is that its single quantitative question is complemented with a qualitative follow-up question where the participants are asked to explain their reasons for giving their particular score. In our study, this follow-up question was worded as follows: "What is the primary reason for your score?". The participants were asked to respond to this question in free text. This approach to data collection on customer experience is reminiscent of the critical incident technique where customers are asked to report in their own words on critical incidents in service delivery (Gremler, 2004).

Our main approach for gathering data on service recovery was to include questions concerning calls to customer service after the order had been placed. The participants were asked how many times they had called customer service after placing their order, which issue they had called customer service about (free text), and the current status of such issues (reported as predefined categories, i.e. resolved immediately, resolved after a while, not resolved, or don't know whether it is resolved or not). To ensure that the questions on customer service calls did not bias the participants' responses to the NPS-question, the NPS-questions were administered as the opening questions of the questionnaire. Hence, the

participants responded to the NPS question considering the entire process of ordering the broadband connection and having it installed, not only the aspect of the process that concerned customer service.

The participants were also asked to report on the channel through which they placed the order, as well as whether or not they had called customer service or visited the operator's customer website as part of their pre-order research process.

Analysis

We investigated the question of *how* service recovery affects customer experience through quantitative data analysis, based on the NPS-scores and data on calls to customer service. This analysis was conducted by the statistical software package SPSS where the study hypotheses were tested through independent samples t-tests. We investigated the question of *why* service recovery affected customer experience through qualitative data analysis of the free text replies. This analysis was conducted as a content analysis following Ezzy (2002).

Results

In total, 312 new broadband customers completed the questionnaire. Of these, 63% were male and 37% were female. The mean age was 45 years (SD=16). The mean delivery time for the broadband connection, after placing the order, was 18 days (SD=14).

The majority of the participants (72%) had placed their order by calling customer service; the remainder (28%) had placed their order through the operator's customer website. Practically all participants intended to install the broadband connection themselves following delivery from the broadband service provider; only 8% pre-ordered a service person to help them complete this installation.

NPS-scores and reasons – shedding light on the customer experience

The customers were in general positive to the ordering and installation process. The mean score on the NPS-question was 7,2 (SD=2,7). Most participants (67%) provided a free text answer as to why they had given the particular NPS-score. Table 1 presents a summary of the most frequent reasons for the scores.

Most frequent reasons	Count
Customer service. Experiences from interaction with customer service personnel when placing the order or as part of service recovery, or general service experiences with the provider.	68
Delivery/installation. Experiences concerning the delivery or installation of the broadband connection.	50
Broadband quality. Experiences concerning the quality of the broadband connection, in particular speed and stability.	43

Table 1: The participants' most frequently reported reasons for their NPS-scores.

Customer service was the most frequently reported reason for the NPS-score. The participants in particular reported on customer service experiences when placing the order or when in need of help.

Pleasant customer service person that took my order when I called. (P#305, NPS-score 8)

[...] excellent great customer service when I called for help during the installation process. (P#221, NPS-score 10)

Interestingly, the vast majority of the reports concerning customer service were positive; that is, the participants explained that customer service was the reason they would recommend, rather than not recommend, the operator. Hence, reasons concerning customer service typically were associated with high NPS-scores.

I find that [this broadband service provider] provides good service and that all I have been in contact with have been pleasant and very helpful. (P#66, NPS-score 10)

I am very happy with [this service provider] in its entirety, phone, mobile, and broadband all have good service when I have questions. [...] (P#220, NPS-score 10)

This close association between customer service experiences and high NPS-scores is interesting. After all, we asked the customer to assess the entire process of ordering and delivery of the broadband connection, not their particular interactions with customer service.

Participants also frequently mentioned delivery, installation, and broadband quality as the reasons for their NPS-score. However, contrary to what we have seen regarding customer service, experiences from delivery and installation were far more diverse in terms of whether they were positive or negative.

Speedy and good delivery of the broadband services, without great surprises concerning price. (P#7, NPS-score 8)

It took too long to get online. The service person had to be called upon twice. (P#43, NPS-score 0)

Similarly, experiences concerning broadband quality were also more varied than the customer service experiences.

Because the network really is very good. [...] (P#5, NPS-score 10)

Low and varying speed. However, the service person informed that it was a poor line. (P#127, NPS-score 4)

Hence, while customer service experiences tended to be reported as associated with reasons for high NPS-scores, experiences concerning delivery, installation, and broadband quality tended to be associated with both higher and lower scores.

Calls to customer service – insight concerning service recovery

About half the participants (53%) had called customer service after they had placed their order. According to the free text answers of these participants, the topics of the calls were classical support or helpdesk issues. The most frequent topics were questions concerning: how to install the broadband network (41), the date for delivery of the broadband network (20), the order or delivery process (18), or the invoice (11). Two examples of answers from the participants as to why they had called customer service are provided below.

I had some problems with the installing. Had the wrong software during installation. (P#172, broadband installing issue)

I did not get online. But had not seen the activation date in the letter I received. Hence, I thought I would be online the same date as the technical person had been enabling the connection (P#43, enquiry concerning activation date)

All participants who had called customer service after they had placed their order were asked to report on the status of the issue that had prompted their call. Many reported that the issue was resolved immediately (60) or after a while (75), but some also reported that the issue was not yet resolved (22) or that they did not know whether it was resolved or not (7).

The majority of the participants that made such calls to customer service had called only once or twice (118). However, some had called three to five times (26) and others more than five times (20), something that also reflected on their reasons for their NPS-scores.

A lot of problems with the installation. Received a new modem, installing took more than a month. I called for a technician, and when he finally got involved, the issue was easily resolved. (P#297, NPS-score 2)

Evidence and a possible cause of the service recovery paradox

Combining the participants' responses on the NPS questions and the questions concerning calls to customer service gives us insight into how service recovery influences the customers' assessment of the service.

First, we investigated whether the participants' experience of service recovery affected their likelihood to recommend the service provider to others. We compared the NPS-scores given by three groups of participants:

- (a) *Did not call*: those who had not called customer service after they had placed their order.
- (b) *Resolved immediately*: those who had made such calls and had their issue resolved immediately.
- (c) *Resolved after a while / not yet*: those who had made such calls and had their issues resolved only after a while or not yet.

In line with the hypothesis of the service recovery paradox, we found that the participants who had made such calls and gotten their issue resolved immediately tended to report higher NPS-scores (Mean=8,3, SD=1,9) than those who had not called customer service after placing their order (Mean=7,7, SD=2,3) ($t=-1,69$; $df=203$; $p(\text{one-tailed})<0,05$). This difference, however, was small with an effect size (r) of 0,11.

Participants whose issues were resolved only after a while or not yet tended to report lower NPS-scores (Mean=6,1, SD=3,1) than those who had not called customer service after placing their order ($t=-4,70$; $df=250$; $p(\text{one-tailed})<0,001$). Slow or incomplete service recovery was associated with greater changes in NPS-scores than was immediate service recovery, with an effect size (r) of 0,26. Furthermore, for participants whose issues were resolved only after a while or not yet, we found that the number of calls were strongly associated with diminishing NPS-scores. Figure 1 provides an overview of mean NPS-scores for the different groups of participants.

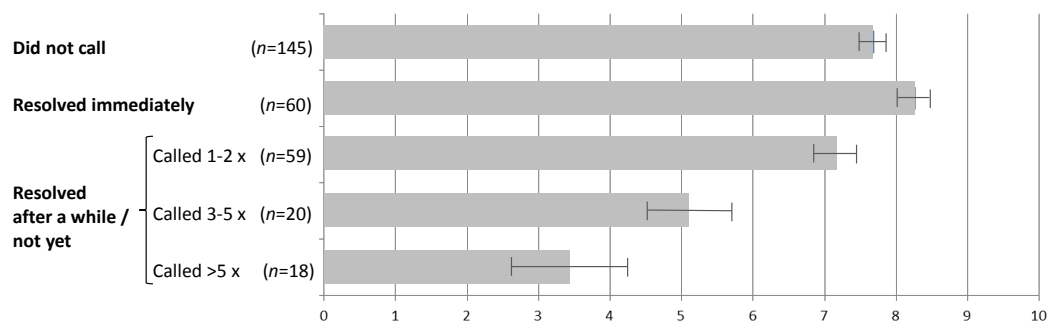


Figure 1: Mean NPS-scores for different participant groups. Error bars represent one standard error.

Second, we investigated the possible reasons for the observed association between service recovery and customer experience. To do this, we analysed the participants' reported reasons for making the NPS-score and compared these for the same three participant groups as above, that is, (a) *did not call*, (b) *resolved immediately*, and (c) *resolved after a while*.

Members of the first two participant groups most frequently reported customer service as the reason for their NPS-scores. However, the participants who had not called customer service after placing their order mentioned customer service far less frequently. Whereas nearly half (48%) of those who called customer service and had their issue immediately resolved mentioned customer service as a reason for their NPS-score, only one out of four (27%) of those not calling customer service after placing their order mentioned customer service as a reason. Customers who had called customer service and had their issue resolved immediately reported reasons like these:

I always get good answers whenever I have questions, and you have great customer service. (P#56, NPS-score 10)

Was customer for 50 years. Now I have had half a year with a competitor, but this was a downer in terms of service. Home is best; hence, I am back. (P#160, NPS-score 10)

The difference between the first two participant groups holds also if we consider only those participants who had placed their order by calling customer service; for these participants, more than half (52%) of those who called customer service and had their issue immediately resolved mentioned customer service as a reason, whereas less than one-third (32%) of those not calling customer service after placing their call made such mention of customer service.

No such differences were found between these two participant groups for the other main types of reasons for their NPS-score. For both groups, less than one-fifth of the participants reported the delivery and installation process (13% vs 19%) or the broadband quality (18% vs. 19%) as their reason for giving the particular NPS-score.

The third participant group, those who had their issues resolved only after a while or not yet, differed markedly from the two others. Participants in this group most frequently reported reasons concerning delivery or installation (34%) for their NPS-score.

When I first placed my order in April [this service provider] should deliver mid-May. Then I got the message that it was delayed to May 30. By May 26, I had not received the router [...]. Router was delivered June 2. (P#136, NPS-score 5)

Customer service was mentioned as a main reason for the NPS-score by 24% of those in this third participant group. Broadband quality was reported as a main reason by 21%.

Discussion

In this final section, we discuss our findings and the implications of these. Furthermore, we address the study limitations and outline future work.

Delightful or efficient?

On the basis of our study of service recovery as part of a larger service process, we can make a nuanced discussion of the claims of Dixon et al. (2010). Our findings clearly are in support of one of the key arguments of Dixon et al.: Inefficient service recovery can indeed be detrimental to the relationship between the customer and the service provider.

However, we also find that efficient service recovery can be something more than a mere lowering of customer effort. At its best, the participants of our study that were provided immediate service recovery described the customer experience not only as efficient, but using expressions such as "pleasant", "great", and "best". Furthermore, when asked about reasons for their NPS-scores concerning the entire service process (that is, ordering, receiving various messages, confirmations, and hardware, and having the broadband connection implemented), these participants typically reported customer service to be their reason. Hence, for this group, the customer experience from service recovery dominates the entire customer experience of getting the broadband connection. Surely, for these participants their experience with customer service was something more than the mere absence of effort. In line with Hocutt et al. (2006), such experiences seem to have been the result of customers' meetings with caring persons at customer service.

Our study, hence, suggests that the conclusions of Dixon et al. truly are important. Inefficient service recovery is detrimental to customer experience, as is seen in the lower NPS-scores of customers experiencing this, in particular when customers need to make repeated calls to have their problem resolved. Hence, efficiency and lowering of customer effort indeed are important when designing and delivering services. However, ignoring the potential impact of delightful service experiences, such as that in the meeting with a caring customer service person, means ignoring what makes services memorable to customers, even for a service as mundane as that of ordering and implementing a broadband connection.

New insight in the service recovery paradox

The study provides new insight into the service recovery paradox. Previous research has shown how an increase in customer satisfaction following excellent service recovery can be explained by such recovery being beyond customer expectations (De Matos et al., 2007) and also generating positive emotions (Schoefer, 2008). In this study, we show how such service recovery can dominate the customer experience of the larger service process of which it is part. Without being prompted concerning customer service, the participants that had experienced excellent service recovery reported customer service as their main reason for a NPS-score given for the whole service process of ordering a broadband connection and having it installed. This finding is in contrast to participants who had experienced less optimal service recovery; these participants, though they tended to have made more calls to customer service after placing their order, made far less mention of customer service as a reason for their score. Rather, these participants more frequently associated their low NPS-scores with issues concerning the delivery and installation process.

Hence, our findings indicate that the service recovery paradox may arise because well-executed service recovery, conducted by caring customer service personnel, is something that is particularly memorable to customers. Even in a complex service process with numerous touchpoints across different channels, personal customer service during service recovery is remembered and cherished.

Implications for service design

Several implications for service design may be drawn from the presented study. We have already discussed the need to consider both how to reduce customer effort and how to set the stage for positive customer experiences. In particular, the study illustrates how combining efficiency and positive experiences may generate memorable moments for the customer. In addition, we will discuss (a) implications of the study concerning service recovery as an object of service design and (b) implications concerning the usefulness of NPS as a means to gather insight into what matters for customers.

Service recovery, as is shown in the study, is a potentially critical part of a larger service process. Hence, it may be beneficial to consider service recovery as an integrated part of any service design process, given both the potential for memorable experiences through well-executed service recovery and the potentially detrimental consequences of its neglect. Service recovery has, until now, not received much attention at the ServDes conference. An important implication of the presented study is to see service recovery as an exciting service design challenge worthy of further study and discussion in this context.

The usefulness of NPS as a means of gathering insight into customer experience is made evident in the study. Due to the widespread uptake of NPS across the service industries, NPS represents a highly accessible route to customer insight. In particular, the free text follow-up question of NPS may be useful to gain insight into the factors most prominent in shaping customers' experiences. NPS, as may be deduced just by looking at its wording, does not directly ask the customers about their subjective experience. Nevertheless, asking customers about why they will (or will not) recommend a service provider to their family, friends, or colleagues reveals which aspects of the service process are critical for their customer experience.

Limitations and future work

While the study has produced useful results, it also has limitations; the most important of which being that the study has been conducted in the context of only one service process at one service provider. Hence, future work involving varied service contexts is needed to investigate whether service recovery has similar implications for customer experience as what we have found in this study. The study is also limited in that it considers the service at only one stage of development. It would be really interesting to see future work concerning how the entire service design process may be oriented towards service recovery as a means for improving customer experiences.

In spite of its limitations, we hope that the study will serve as a starting point for discussions concerning how to design for customer experience in service recovery, thereby setting the stage for service recovery that is delightful, not just efficient.

Acknowledgement

The study was conducted as part of the innovation project Customer Care 2015, supported by the Norwegian Research Council BIA program (NRC project number 219800).

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Design-Driven Service Innovation – A Method to Change the Meaning of a Service

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Abstract

This research develops a method called design-driven service innovation (DDSI) by incorporating the approach of design-driven innovation (Verganti 2009) into service design for promoting the radical innovation in the meaning of a service. In particular, it provides a guideline to reframe the context in which a targeted service is used, and also techniques to explore the new meaning of the service by blending the primary context of service usage with different contexts that satisfy the essential property of key interpreter's unique vision. By demonstrating how the method facilitates the process of design-driven innovation, this paper clarifies the benefits of focusing on the meaning and context of a service for service design and innovation.

KEYWORDS: design-driven innovation, meaning of a service, context, service innovation

Introduction

There is a common understanding among practitioners and researchers of service design that the involvement of users in a design process is a distinguished characteristic of the field (Holmid & Evenson, 2008; Holmid, 2009). Such an emphasis on user involvement, reflecting the nature of user-centered and human-centered design approaches which the methodology of service design is based on (Merger 2004), naturally influences the development and diffusion of techniques used for designing services. Indeed service designers often resort to the techniques for collaborating with customers such as contextual interviews, cultural probes, and co-design or participatory design workshops (Stickdorn & Schneider, 2010). However, compared to the popularity for doing research and co-producing solutions with customers, service designers rarely claim the necessity to distantiate the customers intentionally in order to make a breakthrough vision for a service as a surprising proposal to customers. Regarding such a provocative vision making, Verganti (2009) introduces the approach of design-driven innovation (DDI) in which designers, with the help of other

experts called key interpreters, change the meaning of product radically to generate an innovative product that seduces customers. Verganti (2009) characterizes such an approach as the innovation of meaning to distinguish it from the technology-push innovation and also from the market-pull innovation.

Because Verganti's interest focuses on the product innovation, even though he mentions about its applicability to service innovation, researchers and practitioners in service design have not been paying much attention to his research and the examples of its application to service design are quite limited. One exception is found in an application of DDI to servitizing products (Baha, Groenewoud & Van Mensvoort, 2014), though it does not deal with changing the meaning of an existing service. As for a methodical study, Schmiedgen (2011) discusses the difference and the relationship between design thinking and DDI referring the models of innovation introduced by Kumer (2009). Wetter-Edman (2011) also compares DDI and user-centered design to show based on empirical studies of service design practices that designers actually combine these two approaches in a dynamic spiral way, which is contrary to the dichotomous view introduced by Verganti (2009) and Norman & Verganti (2011). Based on the result, Wetter-Edman (2011) asserts that service designers are already practicing the approach of DDI as their expertise in a complementary way to user-centered techniques. However, it is not clearly stated in the research that how strategically those designers' design-driven approaches aim at changing the meanings of services.

Regardless of the degree to which the approach of DDI is performed strategically by service designers in practice, we are not able to depend only upon experienced designers for generating a breakthrough vision considering the fact that many recent service design projects are involving a various stakeholders including ones who are not trained as expert designers. Verganti & Öberg (2013) also emphasize the role of the top management and the necessity of involvement of leaders in the radical innovation of product meanings because "the center of attention should not be on implementation nor on creativity, but on strategy". To promote further the application of DDI to strategic service design and innovation projects, it is desirable for various participants in the projects to understand the strength of DDI and be able to use it.

This research develops a method called design-driven service innovation (DDSI) as a set of techniques used for service design projects by incorporating the approach of DDI to change the meaning of a service for its breakthrough innovation. In particular, it introduces a guideline to reframe the context in which a targeted service is used, and also techniques to explore the new meaning of the service by blending the primary context of service with its apparently distant contexts that satisfy the essential property of key interpreter's unique vision.

In the following, this paper first explains about the strategy to integrate DDI into service design. Then it introduces the techniques of DDSI by demonstrating how they actually facilitate the design process to change the meaning of a service. Finally, it summarizes the benefits of the method and further discusses on the future research possibilities.

The strategy to apply DDI to service design

Need for techniques to guide the meaning change

The process of DDI consists of the three stages of listening, interpreting, and addressing (Verganti 2009). At the listening stage, an internal design team makes a network of external interpreters who are experts in the research of targeted life context to have dialogues with them for reframing the context and deriving a radical change in the meaning of a product used in it. The design team then moves to the interpreting stage where they integrate the insights drawn from the previous stage with their company's assets and knowledge to explore the possible realizations of a breakthrough concept for the product. The last stage is called addressing in which the company resorts to the interpreters once again to ask them to promote the company's vision using their seductive languages and expressions so that the proposal becomes more meaningful and attractive to future customers. Whereas Verganti (2009) describes the detail of activity for each stage by referring to the topics such as recruitment of interpreters for listening, the organization of workshops for interpreting, and the usage of cultural prototypes for addressing, he does not provide specific techniques or tools for facilitating the process of DDI. Although the framework of DDI is theoretically formulated and the procedure to execute the approach is left for the strategy and creativity of each company, it would be helpful for the company to have some techniques or tools that guide the practice of DDI.

Reframing the context

The point Verganti makes for claiming the importance of DDI is that a visionary company should look at how the current context of life where a product or a service is used is evolving and also should explore how they could change the context so that people could give more attractive meaning to the product or service. To understand this claim correctly, it is especially important to pay attention to the expressions, 'the meaning of a product' and 'the life context'. Regarding 'the meaning of a product', Verganti & Öberg (2013, p.87) have provided the following definition. "To clarify, when we mention 'product meaning', we relate to the purpose of a product/service as perceived by the user. It is about the purpose for why a product is used, not how it is used (the user interface), nor what the product consists of (its features)". As for 'the life context', Verganti (2009, p.12) uses it without a clear definition, just presenting its examples such as 'dinner with family at home at night'. For the purpose of our research, we define the meaning of 'context' roughly as a set of behaviours or activities performed to achieve some (life) goal. More precisely, when we use the expression 'the context in which a product or a service is used', it is assumed that we are looking at some archetype of activity pattern found commonly in the behaviours of a targeted user group. Using these definitions, it becomes possible to grasp more explicitly the relation among the context, the meaning of a product/service, and the change of the meaning as following. When we say that the context of life is changing, it now means that the life goal and the activity pattern to seek it are changing. Also when we mention that the meaning of product or service has changed, it denotes that the purpose to use (or the role of) the product or service in an activity to achieve some goal has changed. Then, as an implication from these clarifications of the terminology, we notice that a drastic change in the context (the goal and the activity to achieve it) in which a product or service is used naturally prompts a drastic change in the meaning of (the purpose to use) the product or service. The techniques this research introduces aim at reframing the context strategically for promoting the change in the meaning of a service.

Changing the meaning of a service

The emphasis on the meaning and the context discussed above has further implications for the application of DDI to service design. Compared to the product, a service deals (or influences) more directly with the user's context. It intervenes in the user's behaviour and journey by introducing interactions with various touch-points like things, people, and places in order to support the realization of the user's goal. In other words, every service is trying to participate in and so modifying the user's context to co-create values with users and other stakeholders. However, it is also important to recognize that a service from one provider is not able to change or control the whole activity context since the user of the service always integrates it with other resources such as ones obtained from other providers and also the user's own actions and competences to achieve the goal (Vargo & Lusch, 2004). Such incompleteness of a service necessitates the consideration of the meaning of a service, i.e., the role a service takes in achieving a user's goal and also the view of a service ecosystem, i.e., the relationship between the service and its surrounding services and resources to constitute the whole context.

Design-driven service innovation

The method of DDSI consists of three techniques that assist the activities of the first two stages (the listening and the interpreting) of DDI applied in a service design project. The reason of the focuses on these stages is that these two are dealing directly with the process to make a new proposal while the last stage concerns mainly on the communication of that proposal, though it is possible to extend the method to include a technique for the addressing as discussed later in this paper.

The first technique of DDSI is called Contextual Reframing. Contextual Reframing is used in the listening stage to reframe strategically a life context in which a service is used into another related socio-cultural context for promoting the dialogue with key interpreters. The second technique is named as Structural Interpreting, which is applied in the interpreting stage to grasp the essence of key interpreter's unique perspective in a structural diagram, setting a direction for the ideation of the new meaning of the service. The third technique, Contextual Blending is finally introduced to develop a concept for new service experience by integrating the primary context where the existing service is normally used with some apparently distant contexts in which people already realize the essence of key interpreter's vision. The overall structure of the method of DDSI is represented in Figure 1 and the three techniques used in the method are detailed in order as follows.

Contextual reframing

The first question a company has when it begins a DDI project for service innovation is which context they should investigate to find a new meaning for a service. The appropriate choice of a service context is also necessary for recruiting appropriate interpreters for design discourse. For example, if a company aims at generating an innovative service concept for a supermarket, a dominant view of its use context is preparing meals at home. Since we cannot expect a radical reframing of the concept of supermarket by thinking just inside such an ordinary context, it is more beneficial to look at its associated contexts such as family conversation at table (an activity that follows meal preparation), housework sharing (a larger context that includes meal preparation), or healthcare (a context that has a causal relation to meal preparation). It is possible to use a symbolic association technique here to find some

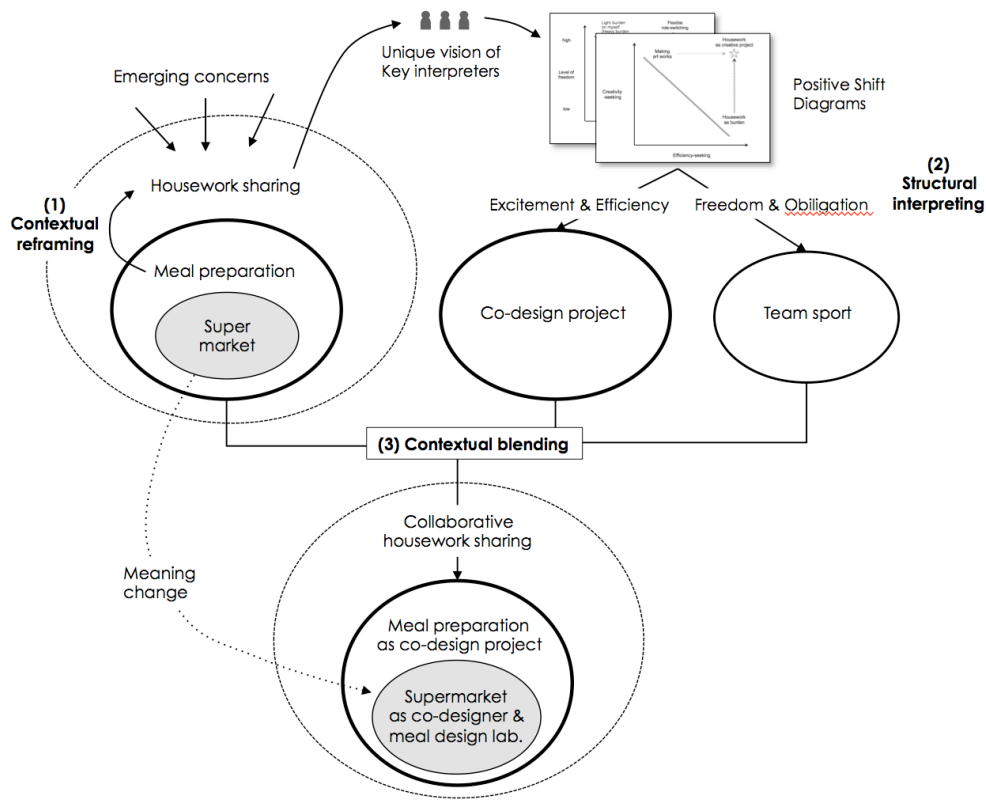


Figure 1 Overall structure of the DDSI method

ideas of life context by deriving associative words (or images) from the words expressing the characteristics of current dominant context. For a commercial project, however, it is especially important to focus on a context for which the company could expect to attract new customers or generate a new opportunity for existing customers to use the service. During such research, the company may also consider their assets applicable to and the consistency of their brand image with the focused new life context. In addition to such business-oriented interests, the company could further consider how a targeted context relates to some emerging social issues or concerns on which more and more people are going to need new solutions to keep or improve their current wellness levels.

We could add a useful tip for reframing the context too. When a company is trying to modify a context in which a product or a service is used, they necessarily look for a new reason why people use the service. It is sometimes easier to pay attention to those who are not currently using the service to find out a new context that could make a reason for them to use the service, rather than figuring out a new reason for the existing customers directly.

Regardless of the techniques to find a new context, as Verganti (2009) mentions, the context the company focus on must be one that its competitors are rarely looking at. Thus, the desirable context to explore a new meaning of a service is one that has a potentially strong connection to the current use context but has not been seek for as a major reason to use the service due to the biases and assumptions of dominant perspective. In general, we can expect that more difficult imagining a new context is in terms of association to the current use context, more radical and innovative a new meaning of the service becomes in the new context.

Structural interpreting

At the interpreting stage, an internal design team of the company confronts the mission to generate breakthrough concepts for a new service that change the meaning of service drastically. Structural Interpreting is a technique used for supporting the ideation of a new service concept based on the insights collected through the design discourse with key interpreters. Suppose that the design team is now provided with many unique visions about a life context, the question they ask is which vision is radical enough and in what sense is insightful to navigate the ideation of breakthrough concepts. Sometimes various opinions from a number of interpreters may cause difficulty for the team to evaluate the visions and set a direction to seek new concepts for a service. To assist a design team in such a situation, the technique of Structural Interpreting together with a tool called as Positive Shift Diagram (PSD) are introduced to represent an interpreter's perspective in a common structural framework helping the team to evaluate if the vision could really evoke a drastic and meaningful shift for a service. A PSD follows the same format as the diagram introduced for breaking conceptual biases by Hideshi Hamaguchi, a former design strategist at Ziba Design and is known as the first inventor of USB flash drive. According to Hamaguchi (2012), because our conceptual bias is often trapped in a trade-off relationship between two properties such as tangibility and data size in the case of computer memory, it is necessary for an innovator to find a solution that satisfies these properties simultaneously by breaking the relationship. In a DDSI project, a PSD characterizes similarly an interpreter's vision in terms of the trade-off relation that the vision breaks.

Let us now look once again at a supermarket as an example. Suppose that a company managing a supermarket chain in Japan launched a service innovation project to change the meaning of supermarket for Japanese customers. While the numbers of female entering into the workforce and accordingly double-income household are increasing continuously in Japan, the average time a husband spends for housework including meal preparation is still much shorter than that a wife does. Considering that housework sharing for a double-income family is an emerging issue in the country, the company might decide to focus on the issue as a social context in which a new meaning of supermarket is explored. Through the discourses with key interpreters on this topic, the design team of the company may be interested in a vision to challenge the dominant view of seeing housework as burden that spouses should share equally through a division of labour. The interpreter's unique vision criticizes this dominant view and provides a new perspective that regards housework as an exciting creative project, which partners can collaborate on with flexibility. In this case, the design team may translate the interpreter's view into the two PSDs represented in Figure 2 and Figure 3.

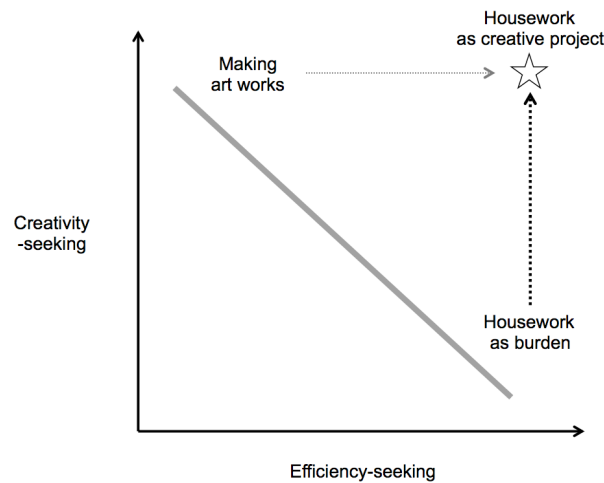


Figure 2: Positive shift diagram on creativity-seeking and efficiency-seeking

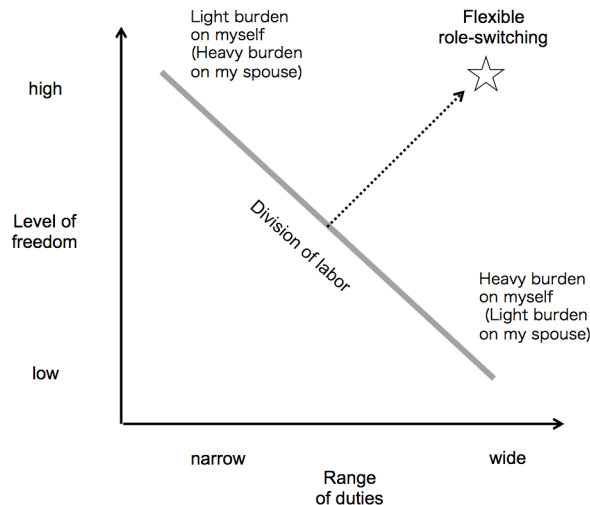


Figure 3: Positive shift diagram on freedom and duties

First, Figure 2 shows the trade-off between efficiency-seeking attitude and creativity-seeking attitude, on which the dominant view of housework is positioned at the lower right on the curve meaning that housework is usually treat as bothering tasks to be worked through efficiently as possible. On the contrary, people usually see a project of making art works, which is positioned at the upper left on the curve, as a very creative activity and they mostly tolerate its inefficient process. Against such perspectives, the new vision looks for the possibility of creative housework, which satisfies both creativity and efficiency simultaneously, being positioned at the upper right in the figure. Secondly, Figure 3 depicts another trade-off between a spouse's freedom (the other spouse's duties) and duties (the other spouse's freedom). In other words, the trade-off explains a division of labour that when the number of one spouse's duties in housework increases, the freedom of his or her home and work life decreases. However, the new vision reveals that if both spouses can switch their roles and shares of housework flexibly according to their fluctuating work-life conditions, instead of relying on a fixed division of labour, they actually have more choices

in the patterns of their housework sharing, thus increasing the degree of freedom in each side's work-life management.

Contextual blending

Once the important characteristics of interpreters' future-looking perspectives are summarized in PSDs, the design team can use these for the ideation of a new service by asking how a new service could support the positive shifts that break the current dominant view. To support such ideation, DDSI uses a technique called Contextual Blending to develop a new vision for the service experience by integrating analogically the context where a targeted service is normally used with another activity context that typically breaks the trade-off depicted in a PSD. The technique of Contextual Blending is developed based on the theory of conceptual blending introduced by Turner & Fauconnier (2002), which explains, in the framework of cognitive linguistics, the structure of metaphorical cognition in terms of the integration between two different conceptual spaces.

In the case of the supermarket innovation project, the company looks for a typical activity context, outside the context of supermarket use, where creativity and efficiency are simultaneously satisfied, and also another activity context where freedom and duties are simultaneously satisfied. One candidate for the former can be the context of a co-design project in the sense that participants in a co-design project usually seek for a kind of creativity to solve a problem collaboratively and at the same time try to complete it efficiently within some limited time and budgets. Similarly, the context of a team sport such as football or basketball can be a good candidate for the latter because we often observe flexible role switching among the players depending on the changing condition of the game development, thus keeping the good balance of players' freedom and obligations.

After setting appropriate contexts that realize the positive shifts, the design team then picks up some properties from these analogical contexts and also some from the context of targeted service usage to integrate these properties into a new blended context in which the expected positive shifts would be realized by the usage of a new service. The process to use the technique of Contextual Blending follows as below. First, suppose that the design team pays attention, as properties to pick up, to the process of a design project known as the double-diamond consisting of the four phases of Discover (research), Define (problem or vision setting), Develop (ideation and prototyping), and Deliver (implementation) (Design Council 2007). They could integrate the structure of this process with the characteristics of meal preparation to derive a new process of meal preparation as a co-design project. For example, the Discover phase for the meal preparation project means to do research on the foodstuffs sold at a supermarket and reserved in the home refrigerator as well as the physical conditions and the appetites of family members. As the Define phase of meal preparation project, a couple of spouses define a theme for a dinner menu such as preparing a meal for keeping them warm in a cold weather. They then move to the Development phase where the ideas for a particular menu and its possible recipes and ingredients are explored. Finally at the Deliver phase, they decide a menu and its recipe and negotiated who buys foodstuffs and who makes meal for the dinner (Figure 4). Regarding the properties of a team sport, the design team may be interested in its various aspects such as training, team management, and strategy. Then they may ask how spouses can develop their cooking competencies and what kind of training program is appropriate for them to practice different work formations and flexible role-switching for meal preparation. Moreover, they could imagine the possibilities of having a strategy meeting for making decisions on buying foodstuffs smart and also hiring an experienced coach for supervising their cooking performances.

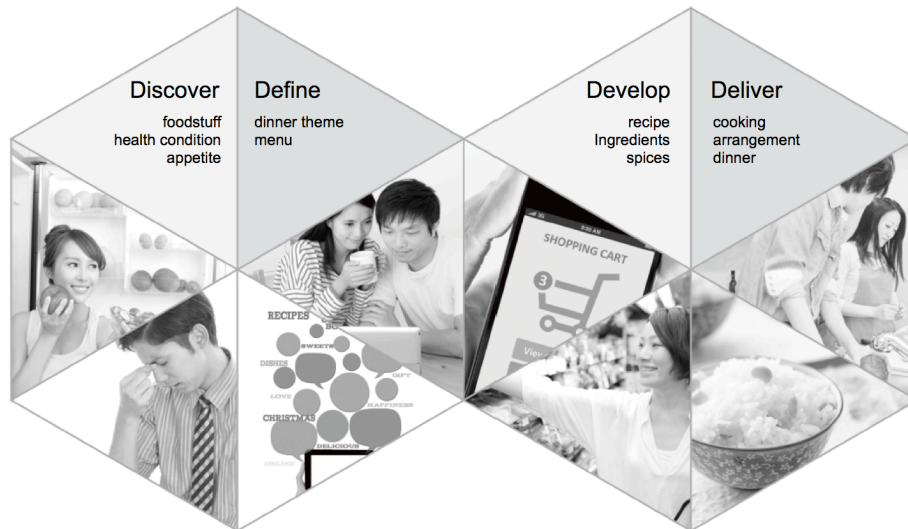


Figure 4: Meal preparation as a co-design project

By using Contextual Blending, the company is now able to develop a new vision and a journey for an ideal meal preparation experience in the blended context. For example, a new vision for meal preparation can be described as a collaborative dining design project for spouses, who change flexibly their formation of cooperation like a team sport according to the work-life conditions of both sides. Such a clear definition allows the design team to draw a new experience journey of meal preparation to realize the concept and a new role (meaning) of supermarket to support it. For example, a supermarket may play a role of a co-designer or a facilitator who participates in the dining design project together with spouses. The co-designer-like supermarket helps researching foodstuff, proposes possible themes for dinner, assists exploring and deciding a menu and recipes, and finding appropriate ingredients. In addition, in considering the application of digital technologies, the supermarket can provide the customer with an online dining design laboratory where the spouses pursue their dining design project using their PCs or smartphones when they are traveling or having break at their offices. The online design laboratory can be a virtual space for brainstorming menu ideas and also for a meeting room to decide which spouse shops or cooks. It may further connect with the food stock inventories both of supermarket and customer's home (say, through a intelligent refrigerator) so that it supports the spouses' design project based on the live information of the food stocks. Continuing such ideation, the design team may happen to come up with a new concept for the retail space of the supermarket. Since spouses of double-income households usually have a limited amount of time to do shop at a supermarket or cook at home, they may prefer home delivery or just picking up foodstuff they have already bought online. For such customers, the supermarket does not necessarily have a large store space but may need a convenient pick-up window for the online shoppers. Or it may also need a new facility for cooking staffs at the supermarket to precook meals according to the order made online by the customer. Figure 5 shows the image of the derived service concept.

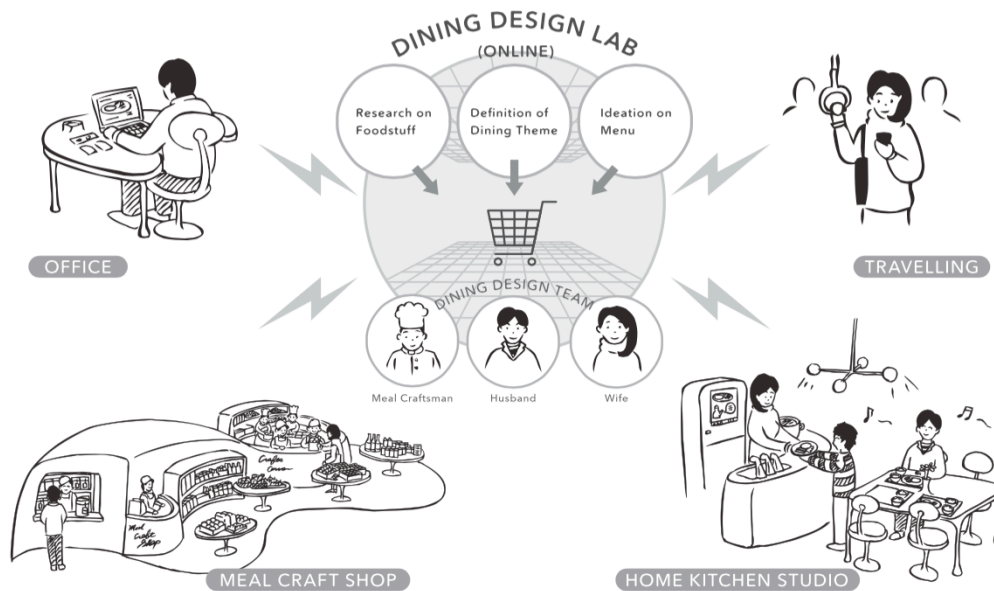


Figure 5: Image of the service concept for changing the meaning of supermarket

Discussions

In the previous chapter, the method of DDSI was introduced by demonstrating how its techniques facilitate the process of design discourse of DDI when applied to the innovation of a service. In particular, this method provided the procedure to transform the current meaning of a service into a new meaning of the service that reflects an interpreter's unique perspective on the reframed life context. Although it is necessary to test the method with real projects for the practical evaluation, we can expect that the approach of DDSI does not just let DDI being more accessible for service design practitioners, including non-experts in design, but also encourages them to coordinate strategically the meaning of a service and the context in which the service is used. Indeed, once a company defines clearly a breakthrough vision of a life context and a novel meaning of a service to support it, these help the company to design the service with keeping coherency among the parts (a behaviour and interaction at each touch-point), the whole (a user journey and experience), and its environment (the life context) of the service.

Such systemic coherence in designing a service along a breakthrough vision also supports the branding of the service. Since the meaning of a service the customer perceives can be influenced by its brand communication, the branding of a service works effectively for the customer's perception of the meaning of a service if it reflects appropriately the vision of the life context for which the customer feels empathy. Moreover, the relationship between the meaning of a service and its branding is not limited to such a one-way effect by the brand on the customer's perception of the service. According to Merz, He, & Vargo (2008), the literature on branding has shifted its focus over the past several decades from viewing a brand as an identifier or an image to viewing it as a dynamic and social process. The authors further explained that this shift has happened in parallel to the shift in the marketing literature in general from goods-dominant logic (brand value is embedded in the physical

goods) toward a more service-dominant logic (brand value is co-created with all stakeholders). Therefore, it becomes important for the project of design-driven service innovation to generate opportunities for all stakeholders to communicate on the new meaning of a service promoting their participation in the process for the co-creation of its brand value that reflects the breakthrough vision of the context.

This line of argument on service branding also indicates the importance of addressing in the process of DDSI, which is not dealt with in the current method. Verganti (2009, p.194) explains the activity of addressing in terms of what he calls as a cultural of prototype, i.e., “an articulation of a new meaning and language”, represented in various formats including books, exhibitions, cultural events, and concept products, used for the codification and diffusion of the company’s new interpretation and vision. For the future research, it is an interesting question to ask what kind of form and expression would be appropriate for the cultural prototypes to address the design discourse on the meaning of a service.

In addition, the method of DDSI introduced in this paper does not cover the issue of technology epiphany, which is a merge of the radical innovation of meanings with technological breakthrough (Verganti 2009). Although it is not clear if there is a significant difference in the approach for technological epiphany between product innovation and service innovation, the development of a technique to promote technology epiphany for DDSI will encourage a meaningful collaboration among engineers, designers, and business strategists.

Conclusions

The method of design-driven service innovation (DDSI) was developed as a set of techniques for applying the approach of design-driven innovation introduced by Verganti (2009) to service design. DDSI provides a guideline to strategically reframe the context in which a targeted service is used, and also a technique to grasp the essence of the unique visions of key interpreters in a structural format. DDSI facilitates a company’s process to generate a new meaning of the service by blending the primary context of service with its apparently distant contexts that stratify typically the visions of key interpreters. Besides the direct merit of using DDSI for service design, this paper also discussed about its applicability to service branding as well as its possible extensions to support addressing and technology epiphany for the future research. The techniques elaborated in this paper do not limit the possible approaches to incorporate DDI into service design but encourage further development of techniques and tools for that.

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The visibility of ethics in open innovation platforms

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Abstract

Open innovation platforms (OIPs) are applied to service businesses and aim to increase service innovation, by engaging users and encouraging them to submit ideas, share content, and invite others to participate. The employment of OIPs raises several ethical issues, such as fairness, ownership, and privacy. One approach for addressing these issues is to raise the visibility of ethics on the platform. Following a systematic approach, this paper explores the topic of the visibility of ethics in OIPs, by reviewing related ethical issues and evaluating the application of ethics by OIPs in practice. We conclude with reflections on design and suggestions for practitioners. The visibility of ethics is seen as a proactive design state, and we argue that it can both improve service innovation through OIPs, and improve the fairness of relationships between customers and companies.

KEYWORDS: Visibility of ethics, ethics, open innovation platforms, design suggestions

Introduction

Involving customers in the innovation process is of increasing importance in the delivery of new services and creation of radical innovations (von Hippel, 2005; Verma et al., 2012). In a survey by Eurostat, more than 70% of all companies have named customers as the most common source for innovation¹. Companies are attempting to open their innovation processes by employing the involvement of customers and technology platforms. Following this direction, Open Innovation (OI) aims to open up the innovation process of a company and encourage the inflow and outflow of knowledge and information (Chesbrough, 2006; 2013). OI is based on the premise that organizations cannot innovate in isolation, and relates to organizations that engage with different types of collaborators, such as customers, to acquire ideas and resources from the external environment to stay competitive (Dahlander & Gann, 2010; Chesbrough, 2006). One way to achieve customer involvement is by utilizing

¹ http://ec.europa.eu/eurostat/statistics-explained/index.php/Innovation_statistics

technology platforms and online tools for OI, namely Open Innovation Platforms (OIPs). A technology platform for OI is an online communication portal for company associates, such as customers, employees, and other company partners. OIPs enable companies to create innovations for services by engaging users and facilitating user activities, such as idea submission, discussions, and competitions. OI applies to services and service innovation by employing an “outside in” or “inside out” approach. The first approach refers to a company that uses external ideas and technologies in its own business, while the “inside out” approach refers to a company that allows some of its own ideas, technologies, or processes to be used by other businesses (Chesbrough, 2011). Both approaches are supported in OIPs for service businesses, and allow them to increase innovation by engaging users and encouraging them to both share content and invite others to participate.

Involving users in the innovation process raises several ethical issues, such as fairness, ownership, and privacy. OIPs enable involving users in a larger scale and thus make this issue even more relevant. A study by Franke et al. (2013) found that “potential contributors not only want a good deal, they also want a fair deal” and “fairness expectations impact the likelihood of participation beyond considerations of self-interest.” Ethical considerations have been addressed in many related areas (e.g., Davis, 2009) and many studies suggest general guidelines for dealing with ethical issues. However, there is a lack of systematic understanding of how design can support the ethical treatment of customer contributions in OIPs. One approach to the treatment of ethics in online platforms is to raise the visibility of ethics. In OIPs, addressing the visibility of ethics is seen as a proactive design state, complementary to the application of ethics, that supports the ethical treatment of customers, maintains their participation in the online platform, and make the ethics of the platform visible on a large scale. Visibility has been described in other areas as the “degree to which socially significant information is made visible in the system” (Turilli & Floridi, 2009). We argue that design for the visibility of ethics can benefit OIPs and support the ethical policies encompassed by OIPs and the companies that employ them.

The paper explores the visibility of ethics in OIPs. The next section presents related work regarding ethics in design, innovation communities, and platforms, and the visibility of ethics that can be applied in OIPs. The discussion of related work concludes by clustering these ethics into four emerging themes. We then present a study of ten corporate OIPs, focusing on their application and visibility of ethics. The following section provides reflections on design for the visibility of ethics, based on the emerging themes, with examples from popular OIPs. Concluding remarks and future work are presented at the end.

Related work

This section reviews the related work in three parts: for design related ethics, ethics for OIPs, and the visibility of ethics. This is not an exhaustive list of studies, but it is representative of the existing work. There are many conceptual levels discussed for the related work, however this is necessary to gain a holistic understanding of ethics in OIPs.

Ethics and design

Ethical considerations for design have been addressed by researchers in many fields, who have sought to provide an understanding of how ethical issues can be framed in the design of these corresponding areas. One widely- applied framework for this purpose is Value Sensitive Design (VSD) (Friedman et al., 2008). VSD concerns a theoretical and

methodological framework that seeks to account for human values in a principled and comprehensive way throughout the design process. The framework was developed by Friedman et al. (2008) and is used to guide designers and enable them to systematically address human values, such as privacy and autonomy, throughout the design process. Key features of the framework include its integrative methodology, which gives attention to both direct and indirect stakeholders, and its iterative tripartite methodology, which combines conceptual, technical, and empirical investigations. Friedman et al.'s study concludes with practical suggestions for using VSD.

Many researchers have studied the ethics of a particular domain. In service design, Carlsson (2012) studied the ethical issues following an ethnographic approach, to explore the ethical design ecology of the field. According to Carlsson,

[...] service designers approach ethical problems in an implicit and consequentialist way and that when ethical situations are dealt with explicitly they are often of a nature in which the consequences of the proposed design solution easily can be foreseen. (Carlsson, 2012)

In addition, he discusses the ethical perspectives that can be adopted by designers, for example, sustainability in design. Furthermore, in the field of persuasive computing, Davis (2009) discussed design methods for ethical issues throughout the process of technology design. The methodological frameworks of VSD and Participatory Design were examined in terms of how they can support the analysis of ethics in persuasive technology. Davis (2009) argues that such frameworks support the designer in engaging stakeholders to uncover and address ethical issues in the design of persuasive technology.

Other studies have focused on a particular ethical issue, such as Pagallo (2012), in which the principle of “privacy by design” in technology is discussed. Privacy by design refers to a preventive design, whereby data protection should be viewed as a proactive rather than a reactive term. Pagallo argues that:

[...] privacy by design should encourage people to change their conduct (e.g. with user-friendly interfaces), or limit the effects of harmful behaviour (e.g. with security measures) by strengthening people's rights and broadening the range of their choices. (Pagallo 2012)

Furthermore, it is argued that some relevant problems for data protection hinge on the information revolution and the lack of clear legal boundaries in digital environments.

Ethics and Open Innovation

As a corporate initiative, OI embeds corporate ethics in the technology platform. However, OIPs should be aligned with user and technology ethics as well. In practice, an online OIP typically includes information about the company and their vision, the innovation process, how the customer can participate, the registration process, potential rewards, etc. In order to delineate the ethics for OIPs, we review ethical issues raised by its component parts: the company, users, and technological platform. Ethical issues exist in every field, with many similarities, and they can provide insights for ethics in OIPs.

Ethics related with OIPs include businesses ethics, such as organizational and strategic communication ethics. One example of business ethics concerns organisational innovativeness. A study by Riivari et al. (2012) suggested that three organisational virtues can most effectively enhance organisational innovativeness: congruency of management, discussability, and supportability. Congruency of management depends on managers and the supervisors who clearly act according to the organisation's normative expectations.

Discussability refers to employees' opportunities to raise and discuss ethical issues, and supportability concerns how the organisation helps its employees to meet normative expectations. A second example of business ethics concerns strategic management, where findings indicate a gap between the implementation of strategy and the moral and ethical obligations of companies (McManus, 2011). The discussion of ethics in the 2011 study by McManus focused on the stakeholder perspective and the issue of trust. Regarding the stakeholder perspective, it is argued that companies should be run for the benefit of a range of stakeholders, who perceive benefits in different ways. Additionally, trust in managerial terms could be described as the belief that the company's stakeholders will avoid harm, by applying ethical principles in addition to more conventional economic criteria. The study suggests that the use of ethical principles promotes the decision maker (i.e., companies) in a long-term effect, as well as the development of society in a short-term effect.

Additionally, ethics for online and innovation communities can be applied to OIPs as well. Living Labs (LLs) is one type of innovation community, and it can be defined as: "[...] *an environment for innovation and development where users are exposed to new ICT solutions [...] targeting evaluation of new ICT solutions and discovery of innovation opportunities*" (Følstad, 2008, p.116). Ethical issues raised in LLs concern privacy and security, personal freedom, autonomy, and responsibility (Sainz, 2012). Privacy and security issues refer to the access to the community, to other users, or to information, while personal freedom is concerned with psychological and social considerations regarding participants' positive and negative emotions. Autonomy is concerned with the possibility of unwanted disclosures of information, conflicts, and other imbalanced decisions that should be considered. Finally, responsibility is concerned with the processes of data collection and reporting. Other ethical issues for LLs include intellectual property issues, reliability of the content, and many more. Another example of an innovation community is crowdsourcing communities. The ethical issues of remuneration and visibility are discussed in a report by Dolmaya on a crowd-sourced linguistic project (Dolmaya, 2012). The dilemma relating to remuneration concerns the issue of whether it is ethical for an organisation to seek volunteers or to offer non-monetary incentives for this work. Visibility is considered a type of recognition for users' efforts and promotes the activity, making it more visible and valuable for the community.

Lastly, the ethics of OIPs could also refer to the ethics of digital technologies and to software-related ethics. The first example is from the digital communications technologies field, where a study by Fortner & Fackler (2011) discusses ethical issues of the field in relation to the problem of trust and ownership. Trust becomes a critical point in monitoring and transmitting a message, because the speed of information production is high, and both gatekeeping and even copy editing are rare. Moreover, problems of ownership in the online world make it difficult to control the reproduction of content, which raises challenges for the issue of fair use in contemporary copyright law. The second example is related to software ethics. In the field of Open Source Software (OSS), three ethical issues were identified in a study by Grodzinsky et al., namely, autonomy of OSS developers, quality of software, and accountability (Grodzinsky et al., 2003). Autonomy of OSS developers refers to the ability of developers to work as volunteers, and to join or quit an effort strictly on their own initiative. Quality of software refers to the ethical responsibility to develop solid, well-tested code. Accountability refers to the problems of ownership and the fixing of bugs, among others. Grodzinsky et al. (2003) concluded with support for the positive ethical force of OSS in the world of computing, and discussed how many corporations have disappointed the public with their lack of ethical behaviour.

The visibility of ethics

The concept of visibility has been addressed in many fields. In social computing, Erickson and Kellogg (2000) defined visibility within the context of “social translucence,” as *“the degree to which socially-significant information is made visible in the system”*. They also described the concept of “social translucence” as an approach for “designing systems to support communication and collaboration among large groups of people over computer networks” (Erickson and Kellogg, 2000). Social translucence concerns ways to build social technologies that support social life, where online social behaviour should become visible to facilitate awareness, ultimately creating social spaces (Erickson and Kellogg, 2000). Additionally, another relevant term for ethics in OIPs is “transparency,” which is employed in different ways. In information technology, Turilli & Floridi (2009) studied the ethics of information transparency and argued that “transparency is not an ethical principle in itself but a proethical condition.” In other fields, such as in collaborative networks, transparency refers to “shared rules, roles and responsibilities” (Grodzinsky et al., 2003), while in the media and communication fields, transparency is defined as the “revelation of someone’s identity” (Franke et al., 2013). Finally, in information systems, McBride (2014) referred to transparency as “the extent to which the derivation of content and process in an information system is made clear.”

Adopting the perspective of Erickson and Kellogg (2000), in this paper the term “visibility of ethics” will refer to *“the degree to which ethics that are socially significant, is made visible in an OIP.”* Socially-significant ethics in OIPs can be the common ethics for a company, company associates, and a technology platform itself. Three additional dimensions can further define the visibility of ethics-related information in OIPs: context, location, and time. The first dimension refers to “which” context an ethical issue relates, for instance, in an idea submission phase, in communication with a customer, etc. Location refers to “where” the information is displayed, such as at the main page, secondary menu, external link, etc. The time refers to “when” the information is revealed, for instance, before the innovation call, after the idea submission, etc. Using an example of a customer who visits the online OIP to participate in an innovation call, the customer goes through the idea submission process, the customer submits an idea in the submission form (context), and afterwards, a business ethics-related document (“terms and conditions”) regarding the innovation process is revealed in the last step (location), after the customer has already described his idea (time).

Emerging ethical themes

To summarize this section on related work, ethics in design are mainly discussed in a specific area, with limited focus on providing design guidelines and limited generalizability to other fields. Ethics from relevant areas provide a general view on what the ethics of OIPs might encompass. The ethical issues discussed in this section can be categorized as, but are not limited to, one of four emerging themes. The themes refer to the content of online OIPs:

User data protection refers to the content that concerns the protection of user information in OIPs, i.e., how the company will collect, treat, or share the user data. Privacy, security, ownership, and intellectual property are some examples of ethics for this theme.

User motivation refers to the content that can provide a motivation for users to utilize an OIP, i.e., rewards for user contribution. Examples of ethical issues include remuneration, autonomy, visibility, collaboration, and free expression.

Justification of the company’s values refers to the content that reflects a company’s ethics in an OIP, e.g., a description of a company’s profile and potential impact on society. Examples of ethical issues include trust, stakeholder management, and responsibility.

Feedback to users refers to the content that establishes communication channels with users through an OIP, such as online chats through customer support channels. Discussability, supportability, and reliability are some example here.

These emerging themes can be helpful in recognizing ethics and their visibility in OIPs. In order to explore how the ethics' themes are addressed in practice, we will evaluate the existing state of ten OIPs.

Method

Ten corporate OIPs were selected to explore how the emerging themes of ethical issues are addressed. The OIPs in our sample are supported by large companies, have been active for years, and attract a large number of participants. Ten web-based OIPs were employed, with diversity in ethics presentation, i.e., in visual information, interfaces, and feedback channels. The emerging themes defined above guided the evaluation of ethics presented across webpages, sub-webpages, links, and menus of the OIPs. Following a content analysis method, we evaluated in a systematic way the broad range of media content in relation to the ethical issues. The content analysis was performed by the authors during the third quarter of 2015, and notes and screenshots from every step were taken. Table 1 presents an overview of the results. The first column shows the four themes, and the next four columns correspond to additional dimensions in the web content analysis (context, location, and time), followed by the corresponding activities involved in this evaluation. In every cell, we included example notes from all OIPs. The generated notes were analysed based on the themes, while additional notes from the interaction history were taken. Based on our results, many similarities in the way that ethics are applied and presented in OIPs were found. We list hereafter examples from the findings.

Ethics related to user data protection were found mainly in “terms and conditions,” “terms of use,” and “privacy policies” documents. Usually, user data protection is embedded in a separate document, either included in a separate link or a subpage, and these documents vary greatly in content, formulation, and length. Also, in some cases, the legal-related links and documents were organized under the same menu (e.g., Dell’s OIP). It was common for OIPs to include legal documents or links for both the innovation process and the use of the online platform. One example is Philips’ OIP, which has documents named “Terms of use” and “Privacy notice,” although another “Terms and conditions” document is included for the innovation process.

Ethics related to user motivation were mainly communicated as calls for innovation (e.g., Statoil’s OIP has a call for “Open campaign” in the main page), questions to provide motivation (e.g., PG’s OIP main page has the question “Could your innovation be the next game-changer?”), visual communication of featured ideas (e.g., Dell’s platform includes featured ideas with images, in the main page), rewards (monetary and non-monetary, e.g., LEGO’s platform has on their “Project Guidelines and House Rules” page a sub-section for “Prizes and Rewards”), etc. Other motivational elements are the use of success stories and implemented products (e.g., Beiersdorf’s OIP main menu has the “Success stories” option), and gamification elements such as points, badges, and leaderboards. One example is for LEGO’s OIP contributors, who are encouraged to gather support from a certain number of “supporters” in order to continue to the next phase, within a time-limited period.

Dimensions Themes	Context	Location	Time	Activities in OIPs
User data protection	In the submission process> terms & conditions (Philips ²)	Menu: Our approach> terms & condition (AkzoNobel ²)	Always visible in a menu (Unilever ²)	Check weblinks, related documents, submission process
User motivation	In Welcome page>Lists with submissions (Starbucks ²)	Main page>Open Campaign (Statoil ²)	Under menu “How it works”>Prizes & rewards (LEGO ²)	Check pages, menus, images, related documents
Justification of the company’s values	Vision for innovation (Beiersdorf ²)	Main menu>About Co-creation Lab (BMW ²)	Always visible in a menu “Why Choose Pearlfinder” (Beiersdorf ²)	Check company profile, menus, related documents
Feedback to users	Communication with users>Browse Directory (P&G ²)	Main menu> Read our blog (Dell ²)	Always visible in a menu: “Corporate information”>Conta ct us (Starbucks)	Check contact options, submission forms

Table 1: Example of content analysis, with notes from all OIPs.

Justification of the company’s ethics and values was communicated through the description of a company’s profile (e.g., BMW’s OIP has a link “About Co-creation Lab”), activities such as current trends in innovation (e.g., Dell’s OIP main page has a list of “trending ideas”), corporate responsibility (e.g., Dell’s OIP includes one link for “Corporate responsibility”), justification of the innovation process with an implementation plan (e.g., Starbuck’s OIP includes in the main page one section called “Ideas in Action”), future activities (e.g., LEGO provides an overview of how their innovation process works, with options such as “Project guidelines,” “Review periods,” and “Acceptable project content”).

Feedback to the users is addressed through communication channels, such as contact forms (e.g., AkzoNobel’s OIP provides contact options for specific company departments). In addition, feedback can be addressed through comments, for example in the evaluation process for user submissions (e.g., Starbuck’s OIP users can comment on ideas and vote for them), discussion communities (e.g., BMW’s OIP filters user characteristics and preferences in order to categorize them into suitable discussion and co-creation groups), blogs (e.g., LEGO’s OIP has a blog with posts regarding interviews from creators, process deadlines, and other news), and social media (e.g., AkzoNobel’s OIP has a link to follow the company on online media channels, such as Twitter, Facebook, YouTube, and others).

To summarize our results, the four emerging themes have been addressed in the examined sample of OIPs in various ways, and we found that the visibility of their ethics varies more in context than in location and time.

² See Philips: www.simplyinnovate.philips.com/index.php, AkzoNobel: www.akzonobel.com/openinnovation/, Unilever: <https://oiportal.yet2.com/>, Starbucks: <http://mystarbucksidea.force.com/>, Statoil: <http://innovate.statoil.com/pages/default.aspx>, LEGO: <https://ideas.lego.com/>, Beiersdorf: <http://pearlfinder.beiersdorf.com/about-pearlfinder>, BMW: www.bmwgroup-cocreationlab.com/home, P&G: <http://www.pgconnectdevelop.com/>, Dell: <http://www.ideastorm.com/>

Reflections on design

We conclude with reflections on design for OIPs. The reflections on design are grouped based on the corresponding themes above, and follow the same structure: a title with a short explanation, detailed description, suggestions for designers, and examples of OIPs with screenshots, highlighting both good and bad examples.

User data protection

Clear data protection policies for each process: Provide clear and separate data protection policies for the innovation process and for the use of the platforms.

An ambiguous element of the OIPs we studied is in their user data protection policies and other privacy policies. The existence of more than one document for or link to these policies raises questions of how the policies are related or applied to the innovation process, the platform itself, and the company. Clarity and separation of these policies could help users to identify the requested information in the correct policy document. Moreover, the clustering of those policies could provide additional visibility for the user.

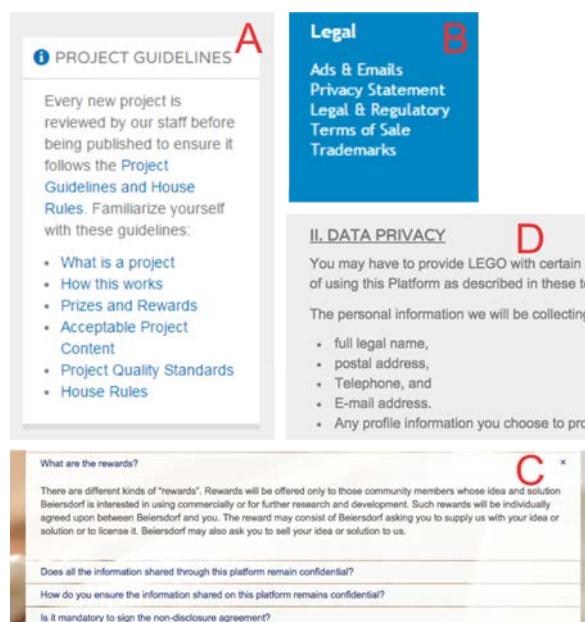


Figure 1: Screenshots of OIPs from LEGO (A), Dell (B), Beiersdorf (C), and LEGO (D).

Suggestions for designers:

- Provide the relevant user data protection policies before the idea submission phase.
- Organize all policy-related links in a separate section.
- Provide an overview of the data protection document, with titles and subtitles, and provide more details on demand.
- Highlight the important information through text formatting, such as colour, font size, underlining, etc.

Examples: LEGO's OIP includes all the project guidelines, with data protection policies visible before the submission process (Fig.1, A). The example from Dell's OIP provides a visual cluster of all legal-related links, placed in the bottom of the main page (Fig.1, B). The

Beiersdorf platform uses a smart way to keep the user focused on the overview of the project details, and also provides information on demand with wrapped text (Fig.1, C). In addition, many platforms use various means to highlight text, especially with long legal documents. A similar example is LEGO's platform, which presents content using readable text formatting (Fig.1, D).

User motivation

Motivations for users: Provide clear motivations in the main page for users to participate.

A driving factor for the success of an OIP is user motivation. Various motivations are addressed to captivate the interest of users. Monetary rewards delivered after an idea is adopted, such as in LEGO's innovation process, will gain the attention of other users. Very few OIPs use monetary rewards, and they strive for intrinsic user motivation. The OIPs primarily rely on a call for innovation, sometimes in the form of a question in the main page. In addition, the use of gamification elements, for example in Dell's, LEGO's, and Starbucks' platforms, provide a more visible motivation for users.

Suggestions for designers:

- a) Organize a call for innovation.
- b) Provide incentive mechanisms, monetary or non-monetary, in a visible position.
- c) Provide an easy submission process for users.
- d) Gamify the process through the use of various gamification elements.

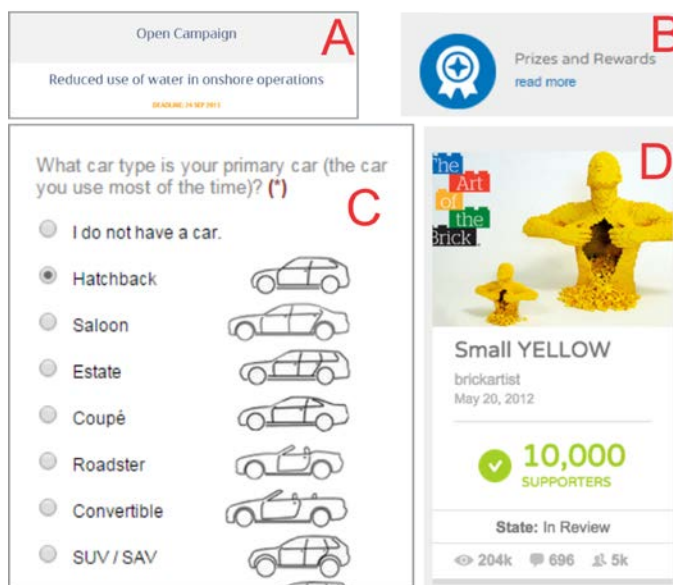


Figure 2: Screenshots of OIPs from Statoil (A), LEGO (B), BMW (C), and LEGO (D).

Examples: Statoil's OIP communicates in the main page a call for their open campaign, with limited time for user participation (Fig.2, A). In a central position in the main page, the call is visible immediately. On the other hand, the area for "Prizes and rewards" in LEGO's platform is organized in a separate section, although it is not visible from the beginning because of its position under a menu item (Fig.2, B). Furthermore, an easy submission process, such as in Starbucks' OIP, could be a motivation for users. BMW's platform utilizes a welcoming form for filtering user characteristics (Fig.2, C), and provides an easy

submission process. Lastly, gamification was a visible way to attract users to participate in innovation campaigns, such as in LEGO's OIP (Fig.2, D), which allows users to visualize the number of supporters, votes, comments, and other project details.

Justification of the company's values

Justify the company's values with innovation: Communicate how the company's values and ethics are justified with the innovation process.

The OIP, as a part of the company, carries the company's values and ethics. However, these were not visible in the majority of the examined OIPs. Clear communication of the company's vision, values, and ethics help the user to recognize and justify the innovation process. An example here is the platform of Beiersdorf where a video is included, describing how the platform works and the benefits for the platform members, among other information. The structure and communication of the innovation process might be significant for user motivation as well.

Suggestions for designers:

- a) Organize the company's ethics in a separate section such as "company profile," "history," "vision," or similar.
- b) Provide choices for the innovation tasks.
- c) Provide an overview of the innovation process, in terms of time, resources, etc.
- d) Provide information on the next phases and communicate the results, such as success stories and implemented products.

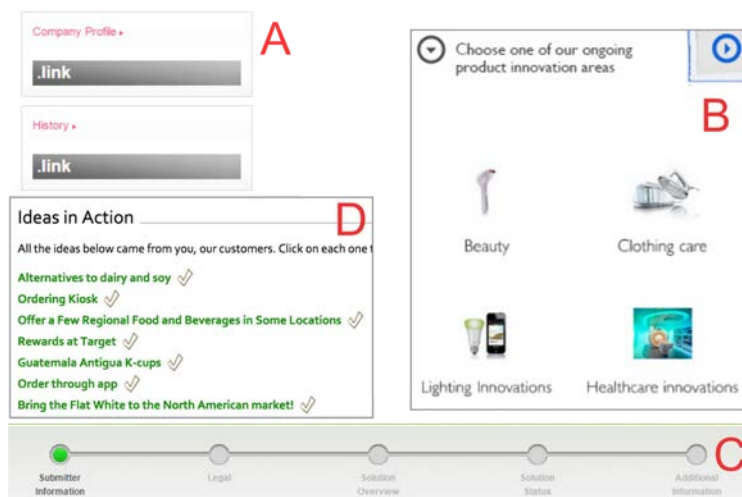


Figure 3: Screenshots of OIPs from AkzoNobel (A), Philips (B), Unilever (C), and Starbucks (D).

Examples: The platform of AkzoNobel provides an example of structured information about the company: their profile, history, fascinating facts, and more (Fig.3, A), in order to justify the company's value and set the context of the call for innovation. In addition, Philips's OIP includes nine categories for user contributions, such as beauty, healthcare innovations, oral healthcare, and more, providing a great variety of choices for user submissions (Fig.3, B). Similar to Philip's platform, Unilever's OIP includes a visual overview of the innovation process, with a five-stage graphic that can be followed throughout the process (Fig.3, C). Finally, Starbucks communicates the list of all ideas that are "in action" or in other stages,

providing information on how the company progresses through user-developed ideas (Fig.3, D).

Feedback to Users

Communication with the users: Support communication channels with the users.

User communication through the company's OIP should be supported before, during, and after the submission process. Usually, OIPs include general contact details, but a more targeted communication channel is needed. Along with a dedicated group who work on the innovation process or the call for innovation, it should be visible how, when, and who the users should contact for direct communication with the company.

Suggestions for designers:

- a) Support user feedback throughout the idea submission process.
- b) Keep the user informed about the current state of his/her submissions and the innovation process.
- c) Provide communication channels among users, such as contact forms, blogs, discussion communities, or similar.
- d) Provide an "FAQ" section with common user issues.

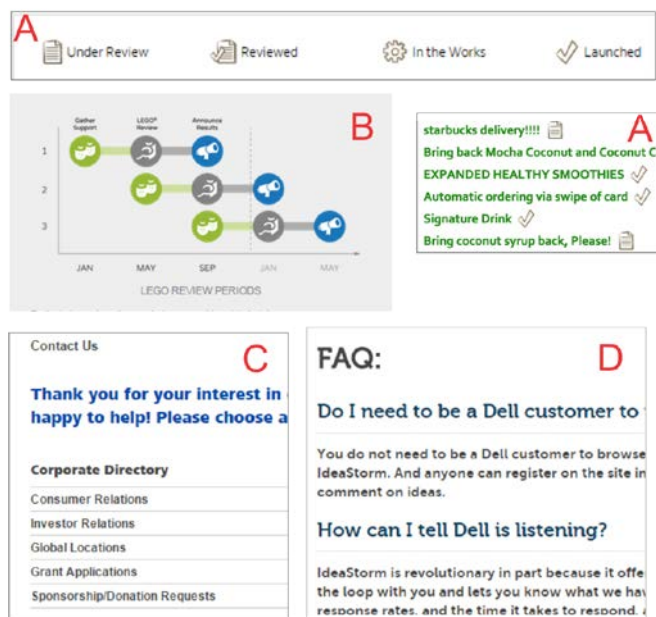


Figure 4: Screenshots from Starbucks (A), LEGO (B), P&G (C), and Dell (D).

Examples: LEGO's platform provides descriptions of the review phases, keeping the user informed about his submissions (Fig.4, A). Also, during the submission phase, there is dialogue with the user in case of any incompatibility with the submissions in LEGO's OIP. Thus the user can improve the ideas and submit them again. The Starbucks platform uses different icons to visualize the current state of each submission, and provides a message informing the user about the current stages in the idea-submission process (Fig.4, B). The P&G platform provides various options for user communication, such as choosing from a corporate directory (Fig.4, C). Lastly, the Dell platform (Fig.4, D) provides a list of Frequently Asked Questions (FAQ) for further support of the users.

Conclusion

The visibility of ethics in OIPs serves to raise awareness of issues important for the fair treatment of users in innovation processes. Because the success of these platforms depends on customer participation, we argue that more attention should be paid to the design of OIPs. By addressing ethical issues in OIPs, such as user data protection, user motivation, justification of the company's values, feedback to the users, and other issues, companies can design for the visibility of ethics as one way to engage user participation. Our results indicate that the visibility of ethics can be improved in OIPs, in order to better facilitate customer participation on a large scale. However, ethics need to be clearly communicated with explicit design. First, the selection of "socially significant" ethics for an OIP needs to be decided upon and clearly communicated to customers. Our reflections on design for OIPs can help to address the visibility of ethics, in connection with other design guidelines, although this is only one approach to the ethical treatment of customers. We also encourage researchers to apply design suggestions from other areas, such as in digital service design, and to invite users or HCI experts for evaluation. Furthermore, interaction designers and platform designers can also use the design suggestions. The application of design suggestions in similar types of platforms needs to be studied as well.

The study had a number of limitations. The research area of ethics is very broad, and we therefore selected representative studies to review, while trying to treat ethics in OIPs in a holistic way for the customer, company, and platform perspectives. The heterogeneity of the studies and definitions of ethics, and their many conceptual levels, was a barrier for the literature review, and we focused only on the studies with clear formulation of ethical issues. From these, we extracted four general themes of ethics. In addition, the use of the content analysis method was an insightful way to gain understanding both for the application of ethics and their visibility. However, a long-term commitment to and active participation in those platforms, probably with an ethnographic study (e.g., netnography), are needed in order to examine in depth the ethical issues. Additionally, a larger number of OIPs would provide rich examples of design practices. Future work includes the application and evaluation of the design suggestions in various OIPs, and the utilization of other methodologies for the evaluation and long-term studies of ethical issues, with both HCI experts and users, as part of an iterative design process.

We believe that ethical issues should not be seen as constraints for customers or general users that limit participation in OIPs. Design for visibility is considered a proactive state that can support the ethical treatment of customers and engage the customers. Companies should communicate their socially-significant ethics and make them visible. Socially-significant ethics in OIPs can be the common ethics for the company, company associates, and technology platform itself. We argue that designing for the visibility of ethics can improve service innovation through OIPs, and promote fairness in customer engagement with companies.

Acknowledgments

This research is funded by the Norwegian Research Council through the Centre for Service Innovation (csi.nhh.no).

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Service implementation: a framework to assess readiness of manufacturing SMEs

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Abstract

This paper reports the initial results of a wider research programme that investigates how service design might positively contribute to the development of product-service systems (PSS) within manufacturing SMEs. The paper presents the results of interviews with two firms that have begun to embrace service design. The analysis of these results is used to produce a conceptual framework that aims to aid understanding of a company's potential readiness for servitization through service design.

KEYWORDS: service design, servitization, manufacturing, SMEs, PSS

Introduction

In the last decades companies have faced radical changes in the way people connect, think and work together (Pine and Gilmore, 2000; 2011). Historically, commodities and goods occupied the main role in the interactions between users and firms; however, more recently the concept of service has become increasingly important. As understanding of service has become more sophisticated, customers and stakeholders seek satisfying experiences and transformations from their interactions with both tangible and intangible products. Thus it may be considered that many things are no longer privately owned, but rather that users are paying for access to services and experiences (Rifkin, 2001). Manufacturers are encouraged to look at the value chain and go towards the customer (Wise and Baumgartner, 1999). In this context, service design has the potential to offer manufacturers a formalised route to better consider their service offering.

This paper deals with small to medium sized (SMEs) manufacturing firms involved in the servitization process. It is focussed on how service design can support them in developing in-house capabilities to implement product-service systems (PSS) and offer integrated products and services (Benedettini et al., 2009; Simons, 2013).

The extant literature provides many examples on how large organizations shifted from good-based production to service-based provision (Mathieu, 2001a; Oliva and Kallenberg, 2003; Brax, 2005). Drivers and barriers related to this phenomenon and the types of value propositions based on the integration of product and service (Baines et al., 2009; Lightfoot et al., 2013) is also discussed (Vargo and Lusch, 2004b; Baines et al., 2007). However there has been little exploration of manufacturing SMEs from a service design perspective (Sangiorgi et al., 2012; Iriarte et al., 2014); yet, this class of company represents the largest section of the economy (BIS, 2013).

This paper is part of a wider research programme that explores how service design might positively contribute to the development of effective PSS within manufacturing SMEs through the following questions:

- » What is the willingness and capability of manufacturing SMEs for the development of services?
- » Can SMEs get a positive outcome from deploying service design thinking?
- » How can SMEs recognise their readiness for service design approaches?
- » How might they be guided in service design implementation?

This paper aims at beginning to understand how service design applies to manufacturing SMEs; and, to begin to engage with SMEs through a framework that aids understanding of readiness for servitisation. This paper consists of a literature review that informs a research instrument, results from engagement with two manufacturing SMEs that have begun to embrace service design; and a conceptual framework for assessing service design readiness.

Background

Gebauer et al. (2011) argues that in the current marketplace competitive advantage can be gained by those firms that begin to offer a service component to their customers; this shift encourages companies to adopt a Service-Dominant Logic for the creation of value propositions to customers (Vargo and Lusch, 2004a). However, Service Dominant Logic requires much more than an increased emphasis on services since it implies a reframing of the firms' purpose and its role in value co-creation (Kowalkowski, 2010).

The literature review below explores three facets of this topic, as follows:

- » Manufacturers vs. Service providers - The design process and the manufacturing legacy
- » The transition from products to services in manufacturing companies: drivers and barriers
- » Recognising heterogeneity in SMEs

Manufacturers vs. Service Providers

Manufacturing firms are facing major challenges when they start the transition from a purely product-based offering to solution-based offerings as product-service systems (PSS). They are characterized by a product-based heritage that comprises product specification terminology, development processes and practical knowledge. In the literature new product development and new service development are discussed separately and the level of description of PSS development processes is less detailed than the previous two. In both cases, the very first phases of the development process, the so-called 'fuzzy front-end' are

difficult to codify (Reid and De Brentani, 2004; Clatworthy, 2013). Kimbell (2009) investigated the differences between new product development and service design and found that service designers pay attention both at macro (service experience) and micro (touchpoints) level; they make a service tangible and visible; they think of the service as a system that consists of artefacts, people and practices. When designers and managers come up with new ideas, it occurs because they make use of abductive thinking. The role of abduction as strategic process has been studied (Dew, 2007; Kolko, 2010) in order to describe the process that designers and managers follow from a ‘messy’ liquid state to a crystalize state (Boland et al., 2007). The literature raises a number of questions on how to frame PSS; how product and service components relate to each in the development process and the related skills and capabilities needed at each stage. Companies have been stimulated to start designing services with the same attention as products (Polaine et al., 2013), but this does not imply that the process is the same.

The value co-creation process-based framework, shown in Figure 1 below (Payne et al., 2008) demonstrates that the value proposition exists in order to facilitate the co-creation of experiences. The importance of recognizing customer processes rests with the need to develop a full understanding of where a supplier’s offering fits within the customer’s overall activities. Customer process mapping takes this idea one step further by dismissing the ‘silo mentality’ and challenging the boundaries between supplier and customer. By designing prototypes, options can be tested or put into real life faster. The conceptual framework below summarises the complex landscape in value co-creation. For manufacturers to go downstream or upstream, a better understanding of customer and supplier is essential to build a relationship.

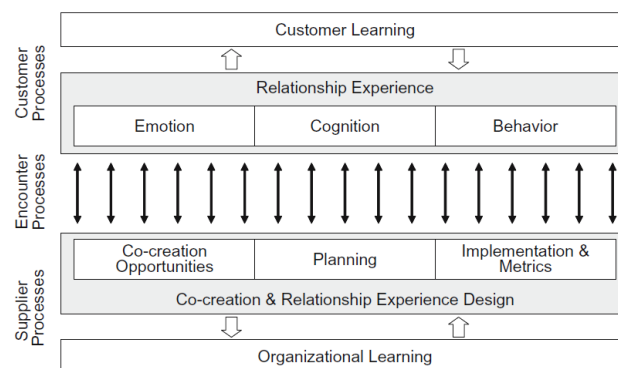


Figure 1 Conceptual framework for value co-creation (Payne et al., 2008)

Transition from products to services

Numerous authors assert that positive results can come from offering services (Brax, 2005; Gebauer et al., 2005) but a move into services is not a panacea and improvements in profits are not automatic (Baines and Lightfoot, 2013a). Some prerequisites are needed, for instance: a better core product platform for a service-based competitive advantage (Grönroos, 2007); an evaluation of the internal assets and resources available, the level of readiness to implement services. Certainly, manufacturing companies possess knowledge and the expertise about their products; but deeper knowledge about internal assets and resources is needed (Kowalkowski et al., 2013). It has been argued that companies that adopt a service-based approach gain more competitive advantage because services are more difficult to imitate due to the higher specialization; and they provide long-term relationships with users (Oliva and Kallenberg, 2003). However, a formalized service design process is yet to emerge.

Product-service systems (PSS) development process appears to be a path for manufacturing SMEs to follow, due to its analogous fit with their current skillset.

In this paper, the authors adopted the definition of PSS by Mont and Tukker (2006) as this concept suggests *the need to link hard and soft issues such as technology and sociology, products and services, and to view existing environmental problems from a systemic perspective*. Manzini and Vezzoli (2003) framed PSS into three categories: services that provide value added to product life cycle; services that provide final results to customer; and, services that provide enabling platforms to customer. Tukker (2004) categorises three types of PSS: product-oriented, use-oriented and result-oriented. Whereas services in the PSS field are usually presented as: basics, intermediate and advanced services (Baines and Lightfoot, 2013b; a).

Servitization is seen as an opportunity for service design to instil a User Centred Design approach within product-based businesses, and demonstrate how the user involvement brings value to the company. The social interaction in creating experiences is translated from service design logic in co-creation (Wetter Edman, 2009). In this context, Mathieu (2001a) point out the fact that the ultimate goal is to service the client not the product. From a design perspective, Morelli (2003) borrowed a set of criteria previously proposed by Bijker et al. (1989) to describe the technological frame applied to PSS. The new operative paradigm suggested by Morelli (2009) looks at the social and human components of the service as services are social constructions; thus, customers should be an active part of the value co-production process. Looking at the benefits of service innovation, Shostack (1993) suggested how to design a service and Clatworthy (2012) extends this process in the way a brand strategy transforms the customer experiences during the New Service Development (NSD), adding original insights into the transition from brand to concept and describing the transition from product to service as a semantic transformation.

Although the previous paragraphs describe the relationship between design of product and design of service and its implications, the transition from product to service generates a series of paradoxes and obstacles that span from the awareness of the concept of service (Gebauer et al., 2005) to the behavioural dimension involved in the organisational aspects and the willingness and commitment of managers to motivate people (Gebauer and Friedli, 2005) and the adoption of integrated product-service business model that present product and service as a bundle (Kastalli and Van Looy, 2013). In order to overcome them, Mathieu (2001b) introduced what she called 'service maneuvers' to indicate the typology of actions to take in manufacturing in terms of organizational intensity and service specificity. Brax (2005) stated that manufacturing businesses that approach services require a different organizational setting than goods, because an incremental approach to servitization is inadequate for anything other than the most basic of new service development. Since the transition occurs in stages (not through leaps) and during each stage, companies have a set of issues to focus on and address them through the development of new capabilities (Oliva and Kallenberg, 2003). In order to convince managers to believe in the economic potential of extended service business, they suggest focussing on understanding the potential of service companies; the competencies needed for such a transition; and, the deployment of a successful service strategy. For instance, increasing service quality and scope might extend the product's useful life, thus reducing its replacement sales and increasing the quality and durability of products might reduce future service revenues. Gebauer et al. (2005) introduced seven behavioral processes in order to increase the service awareness; to accept the risks of extending the service business; and, to believe in the economic potential of services. Extending the service business successfully requires various changes in the organizational structure of manufacturing companies. Generally, the decision-makers are subjected to the conflicting

biases of unjustified optimism and unreasonable risk aversion whether in high or low risky contexts, favouring inaction (Kahneman and Lovallo, 1993). To overcome the biases, they focus on the analysis of forecasting and choice and implications for organizational decisions.

In the literature, the servitization process has been mostly discussed through the lens of large manufacturing companies who have available resources to engage external consultants or can invest in the development of an in-house capability. Moreover, it has been discussed from an organizational lens, leaving a gap in the way the process really occurs from a practical point of view. There is much rhetoric amongst the design community on how design provides practical solutions to complex industrial problems; therefore, it is timely to begin to investigate how design, specifically service design, might play the role of the interface between theory and practice in the implementation of PSS in SMEs.

Recognising heterogeneity in SMEs

The differences between large and small companies is often emphasised; however the differences between small and small firms seem less often considered. The purpose of this research is to help small companies to start thinking from an inside-out to an outside-in perspective. SMEs are not 'miniature versions' of large firms (Welsh and White, 1981). For instance, large manufacturing organisations have been widely discussed in the literature and taken as representative of the servitization phenomenon, namely Rolls-Royce, Alstom Transport, MAN, Caterpillar, Xerox (Baines et al., 2009; Baines and Lightfoot, 2013a) but also Nokia, Ericsson, Michelin, Barclays, Virgin, Herman Miller, Philips Design, General Electric, ABB, Otis. Yet SMEs are regularly recognised as the engine of national economies. However, they are precluded from accessing or effectively utilising service design, as they have neither the resources to engage external consultants nor the knowledge to develop in-house capability. Focusing on small companies means understanding their attributes related to the context they are inserted in, therefore the underlying social and economic dynamics that influence the day-to-day working activities. Berends et al. (2014) states that prior studies found that small firms do not deploy the formalized processes identified as best practice for the management of new product development (NPD) in large firms. Developing competitive advantage in the contemporary marketplace is at the core of the debate for all sizes and sectors in the industry, and this phenomenon affects established SMEs too. Specifically, this paper examines the role that service design plays in this context. Generally, while invention is seen as a cognitive process, innovation is a social process (Reid and De Brentani, 2004); and it explains why Von Hippel (2005) and Rogers (2003) widely described the innovation process in terms of the creation of new products and services, and how it spreads within a community. Hence, the user-centred innovation process overcomes the traditional manufacturer-centric innovation development system, because it encourages manufacturing companies to listen to lead users (Von Hippel, 2005) in order to put forward improvements or new radical ideas. For a manufacturer to choose between innovate-or-buy, she must consider transaction costs to cover and information asymmetries to align (Von Hippel, 2005). In his research on public sector organisations Bailey (2012) developed three hypotheses related to the embedding of service design in organisations: design readiness is crucial for an organisation to absorb design thinking principles and practices; having an in-house 'design office' is essential to disseminate design thinking and practices; and, a change in business working practices and organisational behaviour are required to implement design thinking and methods. Two further essential aspects are: the translation of service design propositions and blueprints into practical projects and the replication of design tools. However, it should be noted that despite Bailey's study appearing to be relevant to the

practical implementation of service design in a broad range of organisations, the main focus was on public sector. Therefore, it remains to be tested if these hypotheses related as well to an industrial context.

As a result of the literature review, the following gaps were found: a lack of studies on servitization related to this size of manufacturing company; a lack of studies that explicitly applied the user centred design (UCD) approach and service design thinking, other than lists of recommendations; and, guidance on the transition from established practices/routines to new ones (renewal, reconfiguration, restructure the organization). Identifying these gaps is an indicator of the research problem because developing integrated systems require a higher degree of service and a supportive infrastructure where interactions between customer, front-office staff and back-office staff - both oral (e.g. scripts) and written (e.g. interfaces) are regulated.

Methodology

Two manufacturing companies have been selected to this research. They have already been involved in a previous service design programme leaded from the design centre the authors work in. All the firms showed interest in understanding how service design can offer to them and expressed their intention to approach services. The number of case studies has been limited to allow an in-depth exploratory investigation of the topic and a regular interaction/update with them. This paper reports preliminary findings on the first phase of a wider research programme that will develop multiple case studies via a longitudinal analysis of manufacturing companies in the UK.

In the literature review, the servitization process deals with the configuration of internal capabilities and resources of the development team throughout the product development process. As a result a template of semi-structured interview was created and questions on routine activities, design strategy, design process and service perception were developed for were asked to senior staff at manufacturing companies.

At the time of writing, this paper reports the results of interviews with: 1) Director of Marketing of Company A; 2) the Technical Director and CEO, the Operations Manager and a Product Development Technician for Company B. In Company B, the author also interviewed two further members of the development team. The interviews took around an hour and a half, the audio from which was recorded, transcribed and analysed using the software Nvivo. Along with the template of the semi-structured interview, a leaflet (see figure 2) providing more information about the author, the design centre, the research aims and the relevance of the topic were given to participants to increase the level of interactivity between the researcher and the interviewees and to trigger a discussion on the barriers and their level of importance along three axes: culture, technology and organisation. The diagram with written notes from participants were scanned and analysed with the same software used for the interviews. In this phase of the study, the role of the researcher is of participant observer. Findings from the interviews provided insights into service awareness and readiness for servitization, assessing internal capabilities and exploring how service design thinking can play a supportive role in service implementation.

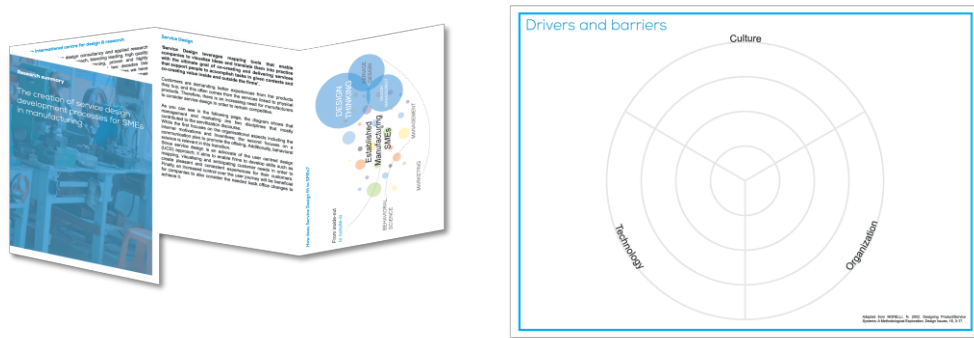


Figure 2 Leaflet presented during the interviews

Results

From the analysis of the interviews, service design was seen as a potential foundation to build a user-centred design (UCD) approach to PSS, however a formalised service design process had not emerged and companies needed to be assessed on their readiness for the implementation of services. The insights are grouped as follows: identity and legacy on making; service awareness; and service design making. Table 1 below is based on the managers perspectives expressed during the interviews.

Identity and legacy on making	Manufacturing companies routinely develop, perceiving changes and using previous iterations as guidelines to experiment and advance the prototype until the final result. For instance, Company B describes the slow pace of fabricating (e.g. feeling the vibrations) as a way to take time, stop and think while doing with the ultimate goal of demonstrating the working product. The service component of the product establishes a relationship with the client (e.g. trials) and extends the lifespan of the product (e.g. contracts).
Service awareness	In order to build a value proposition around the concept of a total solution, manufacturing companies are aware of the importance of engaging with customers and involving them in the early phases of the development process (e.g. first prototype early market). Lead by the goal of enabling their clients through technology, they are able to develop reliable products as a starting point to build a PSS value proposition.
Service design making	The Companies see service design thinking as a bridge between pure service and pure product; thus, service design tools are considered as operative tools used at the very front end. Both Companies state that service design is not only designing a new service and, conversely, manufacturing is not just making one thing in one place. In between there is the potential for the development team to implement services in their offering. For instance, the visual component plays a key role for customers in the pre-purchase phase (e.g. software to configure the components of the ventilation system or the walk-through drawing of the water treatment plant).

Table 1 Findings from the interviews

Moreover, while one of the two manufacturing companies follows a structured product development process that starts from a product design proposal where everybody from the different departments can contribute to the decision-making process at weekly, monthly, and board-level meetings; in the second case, ideas come mainly from the Technical Director/CEO with an overview of the entire process and is then further discussed with a small development group, adding a financial component in order for the team to evaluate the feasibility of the new project.

In the previous section heterogeneity is discussed, noting that best practices, skillsets and assets differ from one company to another. Consideration of how different configurations affect a firm's readiness to implement services is explored in the following section.

Discussion – Readiness framework

While a number of ready to use design toolkits is currently available, there is lack of knowledge on how to tackle servitization from a SMEs' perspective. Taking a step back, an assessment of the level of willingness and readiness of manufacturing SMEs to be servitized stresses the fact that the implementation of a PSS goes beyond a definition of service design and deals with the configuration of a development process that considers products and services as a bundle. The conditions that affect companies' readiness to implement services and guidance on how to re-configure their development processes to address these challenges have not yet emerged. Since the boundaries between the disciplines involved in the servitization process are blurred, a definition that brings together different perspectives to see PSS as a PS continuum is presented below:

The servitization process is supposed to enable manufacturers to shift from a categorization of objects to a categorization of actions and activities. Given their characteristics, SMEs should be encouraged to formalize their current development processes into User-Centred Service Innovation ones and to grow their digital capabilities.

In this context an appropriate definition of service design is also presented:

Service Design is a potential enabler for manufacturing firms to take a step back from the production line to explore how interactions with customers (and how they relate to stakeholders) can be formalised for innovation and development of more relevant value propositions. In the process: recognising that user value encompasses all the activities before, during and after the sales transaction (provision, relationship-based with service).

As long as the transition occurs in stages (Oliva and Kallenberg, 2003), the creation of a framework around the assessment of the readiness of manufacturing SMEs shows a set of issues to overcome. The readiness framework is based on two leverages of service design: being and making. The first one comprises the meta-design skills associated with SMEs; while the second relies on the operational tasks needed to implement the value proposition whose product and service ratio depends on the first leverage. Then, the framework assesses the prerequisites (in terms of readiness and willingness) for manufacturing SMEs to make the transition from product-only offering to product-service continuum offering. The user-centred service innovation perspective (Walters et al., 2012) instils a human perspective in the organisation and recognises individuals' skillset and enables people to accomplish their goals. In fact, when companies start putting themselves into their client's shoes, they start seeing the world from outside in: how clients see the company and why they look for a

solution other than just a tangible product. Making is transforming the insights (observing soft-qualitative and hard-quantitative aspects) into data (finding what the real problem is and formulating new hypotheses) and then into practice (prototyping the touchpoints whether with product or service components). An alignment of the internal activities to make the value proposition relevant to customers is essential.

When it comes to firms' capabilities, Acklin (2013) introduces a framework to understand how SMEs with little or no design experience acquire new design knowledge. Primarily she focuses on how design fits into the company. Similarly, Süße (2015) leverages the concept of improvisation as a promising mechanism and design principle for an organization's capacity for learning, adaptability and innovation within the servitization process. More generally, the concept of absorptive capacity has been investigated by Laursen and Salter (2006) and Chesbrough (2010), but this has not been explored from a manufacturing SME or design perspective.

The following readiness framework is intended to highlight which are the changes or organisational developments a firm should consider in order to increase the likelihood of successful service design implementation. In light of the interviews the focus shifted on the prerequisites to undertake service in value proposition creation.

Drawn from the literature, the framework has been created to align design, management, marketing and engineering in the development process through:

- » Being (assess design thinking awareness and develop a user-centred design mindset)
- » Making: from paper to pixels (list of things to prototype the experience; product and service components); what do you have? What do you need?
- » Delivering (assemble and configure)
- » Following up (control and check regularly)

As a result of the review of the literature and the preliminary results, it became clear that the companies struggled to understand both the meaning and the potential of design jointly with the concept of service. Therefore, similarities between the Design Ladder (Danish Design Centre, 2003) and the transition from good-production to service-provision started to be explored. As shown in the figure 3, the first part of the framework examines the levels of readiness of companies and to what extent they struggle to embed design and service concepts. The synthesized vision shows the Design Ladder on the left (Danish Design Centre, 2003) and the three categories of PSS (Tukker, 2004) on the right. In assessing the readiness of manufacturing companies, the prerequisites to look at are: motivations and expectation in adopting design and services, the dependence of the size of the firm, the types of companies that find major difficulties than other according to where they are positioned in the supply chain. Since the way of framing and implementing PSS (whether the ratio between product and service) is relatively emergent for service design research further exploration is needed.

The challenge behind the framework is to train non-service designers to implement ideas, starting from a formalisation of the interactions (channels and touchpoints) between manufacturers, customers and stakeholders where services are seen as the glue (Lipparini and Sobrero, 1994) between products and experiences that allows transformation. The conceptual framework aims at making firms aware of how to create services by moving away from established product-focused procedures and how to configure operations to deliver an advanced services offering. Thus, the framework presented shows that company decisions on development of a bundle of product and service with services as add-ons to existing products; supportive services to increase product sales at the bottom; or the provision of a

long-term solution for customers at the top once servitization has been achieved. According to the results, Company A offer product-oriented services as 99% of the turn over came from the purchase of the ventilation systems; while Company B develops result-oriented PSS since their prototypes first, and their final products later, demonstrate the amount of water treated. In both cases technology and digital tools informed the way the offering is created and the way the firms are building a dialogue with customers.

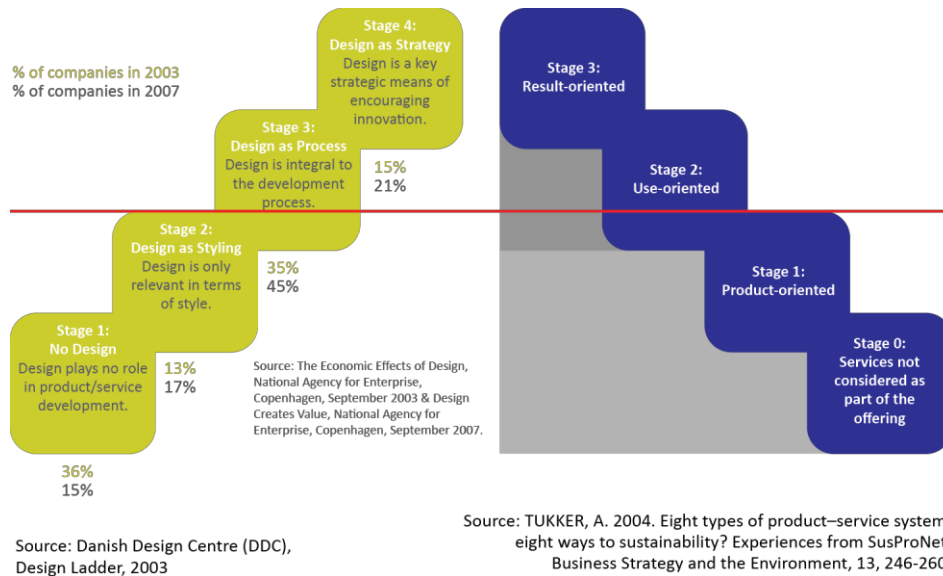


Figure 3 Readiness framework

Conclusions

The results presented in this paper have been used to conceptualise a framework that aims to assist SMEs in assessing their readiness for the implementation of service design. As noted above, this paper forms part of a wider investigation into the potential use of service design as an approach to the development of PSS in manufacturing SMEs. The next stages of the research will be concerned with further development, testing and refinement of the framework. The timeliness of this research is indicated by the gaps found in the extant literature in relation to SMEs, which include:

- » How do SMEs recognise service design?
- » If SMEs are already offering services, how are they currently developing and selling them (structured and unstructured process)?
- » To what extent is manufacturing vocabulary affected by servitization?
- » Can service design be assessed as a mechanism to develop PSS?

This paper reports an attempt to begin to address some of these questions (i.e. what is the willingness and capability of manufacturing SMEs for the development of services? Can SMEs get a positive outcome from deploying service design thinking? How can SMEs recognise their readiness for service design approaches? How might they be guided in service design implementation?). The framework presented here begins to explore these issues; however, there is clearly still much work to be done to understand what benefits service design can bring to SMEs. Findings from the first phase of this study will inform a set of dimensions for companies to self-assess.

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Service Design for Effective Servitization and New Service Implementation

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Introduction

Over the last decade, the transition towards an experience economy made service innovations ubiquitous and essential for creating economic growth and wellbeing (Ordanini and Parasuraman, 2010). Thus, smoothly transitioning from a product-focus to a service- or product/service- focus becomes a priority for many.

Already in 1988, Vandemerwe and Rada described the concept of servitization as “*the increased offering of fuller market packages or ‘bundles’ of customer focused combinations of goods, services, support, self-service and knowledge in order to add value to core product offerings*” (p. 314). They regarded servitization as a key strategy for organizations to undergo a transition and adapt to a new kind of economy where services play a key role in value propositions. Even though the relevance of servitization for (primarily) manufacturing companies is well documented, there is limited knowledge on how to implement a servitization transition effectively (Baines, Lightfoot, Benedettini, and Kay, 2009; Baines and Lightfoot, 2013; Gebauer, Friedli, and Fleisch, 2006). More precisely, whilst it is well acknowledged that servitization requires changes in organizational culture, strategy and structure (Vendrell-Herrero, Parry, Bustinza, and O’Regan, 2014), there is a scarcity of hands-on knowledge providing guidance (e.g., tools and practices) on how product-centric companies can implement those changes and fully capture the performance potential of becoming more service-oriented (Baines et al., 2009).

In this paper we attempt to contribute to this research gap by proposing design professionals as enablers of the servitization transition, and the design approach to service innovation as a set of tools and practices that product-centric organizations can use for service innovation and effective implementation.

By combining different qualitative methods (in-depth interviews and multiple case studies), this article studies collaborations between design professionals and product-oriented client

organizations developing new services. We focus on how the collaboration with design professionals contributes to clients' servitization processes, by establishing different servitization paths for their clients and offering a set of practices that contribute to the implementation of those paths (and subsequently of service innovation). With our findings we contribute to the servitization literature's call for hands-on knowledge on servitizing practices, and propose collaboration with design professionals and adoption of service design tools and processes as an effective solution. Additionally, we contribute to the literature on the role of design professionals as innovation intermediaries, by extending their role to the servitization domain. Particularly, we propose that the role of design professionals in a service oriented context is not limited to facilitating value co-creation processes (Lehrer et al., 2012), but it extends to guiding companies towards a sustainable adoption of service orientation and successful implementation of service innovations.

The remaining of the paper is organized as follows. First, we briefly review relevant literature on servitization and its challenges, and on the role of design and design professionals in service innovation. Then we describe our empirical investigation and present our findings, which we subsequently discuss by introducing a servitization transition path model and by positioning it within existing literature. We conclude with some remarks on practical implications, limitations and directions for further research.

Literature review

Innovation literature has widely recognized that new services require a different development approach than new products (Papastathopoulou and Hultink, 2012; Stevens and Dimitriadis, 2005). Servitization focuses on the practice of product-centric manufacturing companies shifting towards a service-centric orientation (Vandermerwe and Rada, 1989). In 2009, based on an extensive literature review, Baines et al. (p.555) characterize servitization as "the innovation of an organisations capabilities and processes to better create mutual value through a shift from selling products to selling Product-Service Systems."

Though servitization is a valuable strategy for achieving sustainable competitive advantage in the current service and experience economy, such transition is difficult and posits several challenges. For instance, Oliva and Kallenberg (2003) describe three successive hurdles that might stifle servitization efforts. First, companies might not believe in the economic potential of the services, and thus significant effort should be dedicated to make the servitization transition credible internally and externally. Second, even when companies realize the market potential of services, they might not have the necessary company abilities and the interest in developing them. Finally, a company might decide to undertake the endeavour of servitization but fail in implementing its servitization strategy successfully.

Addressing such challenges entails two core transitions, a cultural one and a capability one (Baines et al., 2009; Oliva and Kallenberg, 2003; Slack, 2005). A service-oriented culture is specific and profoundly different from a traditional product-centric culture (Mathieu, 2001), and changing it requires substantial time and resource investments to make such a shift (Vandermerwe et al., 1989; Foote et al., 2001). Particularly, even if there is company commitment to the change, its implementation is likely to meet resistance from parts of the organisation not understanding the service strategy or simply fearing the implications of cultural change (Mathieu, 2001). Thus, creating a service-oriented environment throughout the company and finding the right people for championing and implementing servitization are key to success (Baines et al., 2009).

In addition to a cultural transition, servitizing companies need to face a capability transition, and develop or acquire the necessary tools and techniques for designing servitized offerings. Designing services or product service systems is significantly different from designing products, given the intrinsic fuzziness, complexity and intangibility of services (Slack, 2005). Existing literature suggests collaborative arrangements with partnership and/or outsourcing agreements with third parties in order to build these needed capabilities (Mathieu, 2001; Windahl and Lakemond, 2006).

However, in spite of a good assessment of servitization's challenges and transition strategies, literature is surprisingly sparse in describing how companies can successfully enact servitization and implement a service orientation in their organization. Even at the strategic level, it is not clear what the extent of the service offer should be, or what factors to consider when deciding on a product-service mix (Pettigrew, Woodman and Cameron, 2001). Furthermore, Nudurupati, Lascelles, Yip, and Chan (2013) argue that there are relatively few empirical studies, and often the findings relate to a single case study based on the insights of a limited number of senior managers. This again limits the applicability of servitization empirical findings across organisations.

Tongur and Angelis (2013) and Nudurupati et al. (2013) bring forward several studies from design research as new perspectives that can support servitization with more action-oriented approaches. Authors like Morelli (2006) and Sangiorgi (2011) have already discussed how design can be valuable for untangling the puzzles of servitization. Particularly, previous literature (Morelli, 2006; Sangiorgi, 2011) has provided theoretical support for design professionals as change agents in service contexts and has anecdotally identified design capabilities functional to this purpose. Whilst this literature offers initial, valuable insights, a clear understanding of servitization patterns and the role of design professionals in facilitating and scaling up these patterns is lacking. We aim at extending this knowledge by using empirical data to characterize how design professionals can facilitate servitization transitions.

Methodology

We adopt a qualitative research design to collect empirical data on drivers of successful service implementation. As noted by Lee (1999), qualitative research designs are particularly well suited for studying dynamic, interactive processes.

We combined expert interviews with a multiple case study design (Eisenhardt, 1989; Yin, 2003). Thus we conducted 10 in depth interviews with expert in service innovation (both academics and business professionals) and studied 4 NSD projects of collaboration between companies and external design professionals.

As to the expert interviews, each interview lasted approximately one hour, and was focused on the interviewee's experience in service implementation and his/her perceptions on important factors to successful service implementation. These factors were written down on individual cards by the interviewee or the interviewer and, in the subsequent exercise, clustered organized and prioritized according to the preference of the interviewee.

As to the case studies, our level of analysis was the NSD projects, which we investigated with a dyadic perspective by interviewing both the design professionals and key informants from the companies committing the NSD projects. Using multiple projects increases the validity and generalizability of our findings. We theoretically sampled the case studies. Thus, to observe different servitization patterns we selected four NSD projects started by product centric businesses (PCB) with different degrees of experience in servitization - i.e., PCB with no experience in services, PCB offering services as add-on to their products, and PCB offering service value propositions (Raddats and Easingwood, 2010). Additionally, to get a better grip on the role of design KIBS in the servitization transition. The companies undertaking the selected NSD projects were of different size, from different industries, located in the Netherlands, operating in both national and international markets. This ensures a good balance between similarity (for comparison and replications) and variety (for validity and generalizability) across the cases (Yin, 2003). Table 1 provides an overview of the NSD projects for which we collected the dyadic data.

	Truck&Co	MedSupply	NetPower	Qualycare
<i>Size</i>	Large (>250 employees)	Medium-sized (50-250 employees)	Large (>250 employees)	Medium-sized (50-250 employees)
<i>Industry</i>	Automotive; manufacturer of commercial vehicles	Medical supplies	Power grid operator	Home healthcare provider
<i>Current value proposition</i>	Selling high quality commercial vehicles and providing maintenance	Selling medical supplies to public and private healthcare providers	Installing, maintaining and modernising the power grid	Providing healthcare at home or at nursery homes
<i>Initial degree of servitization</i>	Product centric business adding services to its product value proposition	Product centric business	Product centric business	Product centric business offering service value propositions
<i>Project with ServiceDesign</i>	Development of a new service	Development of a new service, Training in service design	Development of a service-oriented value proposition	Development of a new service
<i>Respondents</i>	Design professional, Project leader, Upper manager, ICT developer	Design professionals (3), Project leader (2), Marketing managers (2), Sales director	Design professionals (2), Project leader, Upper manager	Design professional, Project leader, Upper manager, ICT developer

Table 1 Case studies' description

As to the data collection, for each project we interviewed several key informants, including the project leader, business stakeholders and service internal and external designers, for a total of 20 interviews. Additionally, secondary sources such as project documentation (briefs, reports, presentations, supporting visual material) and informal observations were also integrated in the data collection. The interviews were semi-structured and open-ended. The interview guide focused on the following topics: (1) respondent's background, and his/her role in the project; (2) project's content, including objectives, stakeholders and main implementation steps; (3) the critical moments in each project; and (4) the results and evaluation of the projects. We taped and transcribed the interviews, which lasted from 60 to 90 minutes each. After each interview, the interviewer developed field notes, impressions and conclusions (Eisenhardt, 1989). In order to avoid respondent biased and unintended social behaviours, we followed the guidelines of Miles and Huberman (1994) by clarifying our study objectives and data collection process to the interviewees, and by ensuring the confidentiality of conversations and results. Since our data collection effort relied heavily on retrospective reports, we followed the suggestions of Miller, Cardinal, and Glick (1997) and Miles and Huberman (1994), and implemented some precautionary and/or corrective actions. First, we encouraged free reporting, allowing respondents to not answer a question if they did not remember clearly. Second, we triangulated answers by asking the same questions to multiple participants. Third, we integrated the responses with secondary data, both during and after the interview.

The analysis followed several steps, according to the guidelines of case study and qualitative data analysis methodology (Eisenhardt, 1989; Miles and Huberman, 1994). First, in line with our research questions, the first author analysed each case separately and selected quotes exemplifying key aspects of service implementation and critical moments in service implementation. Based on the selected quotes the first author completed an initial list of the main themes, constructs and insights for each case. This resulted in a first coding scheme for further refined. Subsequently, for increasing the reliability of within-case analysis and for conducting cross-case analysis, each author coded one case (using the provided coding scheme as a guideline), and the results were compared and combined during three collective sessions (Eisenhardt, 1989; Yin, 1994). We used the 'analysis on the wall' approach as an appropriate technique for capturing the richness of the data set (Sanders and Stappers, 2012). The cross case-analysis refined the list of codes, by adding new entries or by collapsing existent entries into others. From the emerging codes we established tentative relationships between constructs. We then refined these initial relationships through replication logic, regularly re-examining each case to contrast and validate the occurrence of certain constructs. We also compared relationships and constructs with extant literature to emphasize similarities and differences, increase the internal validity of the results, and refine recurring themes and constructs. The iteration between data, literature and analysis was repeated several times. The results of this iterative process are presented and discussed in the following paragraphs.

Findings

Our findings show that whilst companies are able to trigger servitization transitions on their own initiative, getting the organization on board and actually implementing the transition requires the supporting role of design professionals. In the following paragraphs we use the insights from the in-depth interviews and the case studies to explain how design professionals helped their clients becoming more service-centric by facilitating changes in their mindset and processes, and by maintaining commitment to those changes.

Creating a service oriented mind-set. Design professionals enable the servitization transition by facilitating a change of corporate mind-set towards a more service oriented one. By leveraging on their creative and emotionally engaging tools and on their familiarity with divergent thinking, design professionals help organizations to *thinking differently*, thus creating the proper ground for adopting a service perspective rather than a product one. As the project leader at QualyCare observes, “*My first impression is that they were very creative. And I appreciate that, just to have a different way of thinking. And they encouraged us to think different as well. That was actually my main reason collaborate with ServiceDesign rather than with other kinds of consultancies*”.

Particularly the design professionals in our sample introduced a more authentic user perspective in its clients’ innovation practices. Despite some clients might have been already used to market oriented innovation, design professionals helped them developing a deeper and more authentic understanding of user needs and satisfiers. This occurred by using human centred methods for getting to know the market(s) and developing fitting offerings, and by engaging clients directly with such human centred activities. As the NetPower case illustrates, using contextmapping for gaining user insights on what power energy really means for people’s life helped the client organization experiencing the user perspective and subsequently embedding it in their service offering and way of working.

Relatedly, design professionals not only provided a deeper understanding of the user perspective, but also helped clients translating it into service/PSS offerings fitting this perspective. As the project leader of Truck&Co recalls, the design professionals made the team so genuinely engaged with user needs that it became very easy and straightforward to develop a driving service accordingly, with no disagreement on its feasibility and market potential.

In some cases, the user-oriented mind-set became ingrained not only in the process of developing and new service, but also in the client organization itself. For instance, in the MedSupply case the user perspective was understood and embraced by the entire company for driving their innovation portfolio decision making (e.g., what are the most appropriate innovation project to come). In the QualyCare case the design professionals helped the client organization in embedding the user perspective in their company vision, as a starting point for

shaping the organization and its core processes accordingly.

Creating a service oriented innovation process. In addition to instil a service-centred mind set, design professionals also help companies acting differently by introducing an user-centred and design driven innovation process that is more suitable to the development of new services.

As literature has shown, the process of developing new services differs from the process of developing new products, in terms of higher complexity, lack of a linear structure, and need for integrated implementation. Our empirical research shows that design professionals helped companies transitioning from a product oriented towards *a service oriented process* by introducing their user-centred service design process (*"[The designer] brought along [the user centred perspective] and thus we have further refined [the service design] approach. Previously the approach was defined in broad terms, there's a building-the-team phase, the analysis phase and then we'll think of developing things, and writing up a business case. But [the service design approach] clearly has further refined our approach towards a more user-centred one, and thus a more service oriented one"*, Project leader, NetPower). The service design process introduced by the design KIBS appeared to be more structured than the client's original way of pursuing the servitization transition (*"This proposal is a plan on how we are going to come in a number of steps to a business case for [the new service proposition]"*, Design professional, MedSupply), and at the same time simple enough to be quickly implemented (*"No, because their project plans are always very basic. And that's fine with me, so you commit to the main lines of the project proposal, and that is just part of the approach"* Project leader, QualyCare).

By introducing a clear, simple structure in their clients' service development process the design professionals blended the benefits of the creative and divergent design approach, with the benefits of the linear and rational approach commonly used in managerial problem solving. As the design professional in the NetPower project recalls, having tangible deliverables (like the customer journey) really helped the company to get a feeling of moving to a goal and being on track in the development of the new service. According to the Marketing Manager of the MedSupply project, having such clear deliverables and a set of specific tools for providing them also created a common language across different stakeholders, with positive consequences for generating commitment and project ownership.

Introducing a bottom up approach to service innovation. According to our empirical investigation, design professionals also promoted a more bottom up approach to innovation, where, in order to capture the user perspective, ideas are generated from innovation teams close to the market, and then promoted through different company levels till top management. This bottom up approach is more appropriate for effectively implementing the service process discussed before. For instance, in the NetPower case, whilst the servitization initiated with a top down approach (as the initiative of the top management), the design professional introduced a more bottom up approach for its implementation. Thus, the value proposition for developing the new service was

not defined by the top management and then passed down for its execution, but rather derived by the innovation teams through the combination of different ideas and user insights. Subsequently, the proposition was improved and consolidated by integrating the creative inputs from different company levels till top management approval.

The bottom up adoption of innovative ideas is achieved by consensus, thus by involving different, influential departments in perfecting the idea/value proposition and by emotionally engaging decision-makers with the innovation project. For instance, in the MedSupply case, the design professional organized a series of workshops to help different employees understanding why a service innovation direction was undertaken and to encourage them to contribute to its implementation. This consensus-driven approach is particularly relevant for servitization, since implementing the transition might require substantial organizational and structural changes at different levels in the company.

Creating commitment to servitization. The servitization transition requires companies to permanently modify their way of thinking and acting. This change might be perceived as risky and many actors can deviate from the servitization transition because of their risk adversity. As the design professional working for NetPower recalls, the effective accomplishment of the servitization transition was challenged by the client's continuous need of finding compromise between the current organizational structure and strategy and the changes requested by servitization. “[*The organization*] is steering towards that compromise all the time. Without them realizing, I just notice that we [i.e., the designer] say this and they say that and let's meet in the middle, so we get somewhere. And in this project, that's a bad idea”.

Our data suggest that design professionals play an important role in reducing cultural resistance and *keeping companies committed* to the servitization transition. Achieving such transition requires companies to think differently and to act differently. Such commitment needs to be renewed and maintained throughout the entire project, especially in those critical moments in which organizational and structural changes might emerge as necessary for effective service implementation.

Design professionals maintained organizational commitment to the servitization transition through two key practices, namely the training approach in the execution of the projects and the frequent use of visualizations throughout the projects. These practices engage the organizations with the transition on a deeper level, by creating a deep, shared understanding of the servitization transition and by letting the organization, especially the employees experience the service design process.

Design professionals in our sample invested significant time at the beginning and during each project in training the client team in using service design tools, so that they could execute the

service design process together with the design professionals and develop ownership to its' outcome. As a manager from MedSupply recalls, the training sessions on human centred research and customer journey mapping helped in creating awareness about the different innovation approach, in keeping the team committed to a paced and effective execution, and ultimately in facilitating organizational learning. As explained by the design professional involved in the same project, *"the training program for the development of services goes in parallel with concrete work on developing those services"*. Thus, in the planning and execution of an NSD project, designers balance activities aimed at generating a new service with activities aimed at educating stakeholders (including top management), team members, and employees in the service design approach.

Engaging the team through a training approach helps reducing the perceived uncertainty of NSD projects. Whilst uncertainty characterizes any innovation project, in service innovation the perceived uncertainty is intensified by the intangible nature of the outcome, which can hinder a shared understanding of the project outcome and its accurate and thorough implementation. Designers in our cases used a variety of visualization tools for reducing the perceived intangibility and, thus, enabling effective service implementation. The frequent use of visualizations of the emerging new service (e.g., the blueprint, customer journey map, storyboards) makes the NSD outcome more tangible and easier to communicate to different stakeholders. The use of compelling images and a narrative style makes the object of communication also stick in the mind of stakeholders for longer (*"In the beginning of the project the service blueprint, but also to the personas [...] bring a lot of information to you and to a point that [it stays in your head for a significant amount of time]"*, Project leader, QualyCare). Additionally, clear, tangible visualizations stimulate business stakeholders to take decisions, to act consistently with the service outcome and eventually starting its implementation. As the design professional in the NetPower project indicates, *"There were documents, so we had a service blueprint, and we had a couple of persona's, and we had insights, infographics of users, and we had done desk research. But to present this in the shape it was, and consolidating this in a business case on which the Board of Directors can make a decision. That was still quite a lot of work."*

Discussion and concluding remarks

Adopting a servitization strategy brings significant cultural and organizational challenges (Brax, 2005; Oliva and Kallenberg, 2003; Slack, 2005). Our empirical data show that design professionals can support companies in addressing such challenges by instilling service-oriented practices and by maintaining commitment to the servitization transition. By taking a design perspective, we extend the knowledge base in the servitization domain, which builds on several research communities (e.g., service marketing, service management, operations management, PSS, service science) but has never generated empirical knowledge on the complementarities between servitization and design principles (Lightfoot, Baines, and Smart, 2013).

For instance, a key requirement for effective servitization transitions is a strong customer centricity, where customers are no longer just provided with just products, but more integrated and tailored ‘solutions’. Although few authors in the service management field have conducted empirical research and developed tools and techniques for enabling product-centric companies to understand value-in-use for customers (Uлага and Reinartz, 2011; Morelli 2006), it is not yet clear how to develop such a service-specific capability and the associated processes for using it to address the variety of customer needs. Our data have shown that integrating design professionals can help servitizing companies to start developing such capability. Design professionals in our sample enabled their clients to identify users’ latent needs and requirements, develop service-focused value propositions to address them, and translate the value propositions into meaningful experiences and touch-points. Given design professionals’ expertise in user centeredness and their capability of embedding a customer oriented mind set (by training their clients in user centred methods and by engaging them with their customers), they represent a ‘natural’ partner for servitization transitions. Their actions in co- designing the new service-oriented propositions together with their clients - by instilling the right mind-set and the right process - can have a large impact on the cultural and organization transitions needed for effective servitization.

By giving design professionals a central role in servitization transitions we also empirically contribute to extend the importance of designers and design knowledge for firm competitiveness in service contexts (D’Ippolito, 2014). Specifically, previous studies limited the role of design professionals to creative tasks in service innovation and in facilitating value co-creation across stakeholders (Lehrer et al. 2012). Our study suggests a much broader role for design professionals, which become strategic partners in the entire servitization transition and in overcoming the key challenges to its effective implementation. Relatedly, design processes and design tools – i.e., the service design process, visualization tools – provide concrete directions on how to implement the transition to more service-oriented competitive strategies, thus answering the central call for more hands-on knowledge in the servitization research domain.

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Moving towards Service Dominant Logic in Manufacturing Sector: Development of a Tool for Inquiry

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Abstract

The successful adoption of a Service Dominant Logic in organizations requires more than the introduction of service offerings; in this paper we argue that it requires a conscious and parallel evolution of the understanding of service, design and users. We suggest how the creation of conversation tools could help organizations become aware of their positioning within this evolution and consider applying relevant strategies. The paper firstly reviews how the understanding of service, design, and users has evolved in the last few decades, identifying three main stages that are then summarized in a theoretical framework. Based on this framework, we developed the first version of a tool for organisational inquiry and applied it to employees in a large global company. We present key findings from this ongoing study¹, discussing how the tool might help an organisation align its vision and understanding across departments.

KEYWORDS: Service Dominant Logic, Manufacturing Sector, Service Innovation, Conversation piece

Introduction

Recent debate in Service Research has focused much attention to the implications and potentials of shifting organisations and their practices from a Goods Dominant Logic to a Service Dominant Logic. Key difference between these two logics has been described as a different way to perceive value, from being embedded within goods and exchanged at the point of delivery, to being co-created with and by customers in their context of use, which implies the adoption of a customer centric approach to innovation and business

¹ This study is part of a Special Interest Group on Service Design of the International Society of Service Innovation Professionals (ISSIP) (<http://www.issip.org>)

development. The implications of this transformation do not concern only service sector organisations, but also manufacturing companies that produce and sell tangible goods.

The journey and challenges of companies moving toward an increased service provision has been discussed within the *servitisation* literature, but the debate around Service Dominant Logic does add a further perspective; most studies on servitisation examine how companies move from a product to service dominant logic through a manufacturing lens. However to make the quantum leap requires a more holistic view of an integrated business, examining how traditional manufacturing capabilities and service activities can be combined to deliver an outcome or experience (Grönroos & Helle, 2010, p. 565). In this paper we aim to look at this journey toward the implementation of a Service Dominant Logic for a manufacturing organisation starting from the perspective that moving toward a Service Dominant Logic requires a change in the way organisations innovate and develop their business. We also suggest how the adoption of this perspective is based not only on a change of perspective on what services are, but also on an evolution of how organisations perceive and engage with design as well as with their users and other stakeholders.

This parallel evolution of Service, Design and User engagement is traced below through three macro stages and proposed as material for reflection for organisations to look into their own transformation journey. We propose this as a *tool for inquiry*, in line with Sabine Junginger's argument (2015) for the need to enhance designers' ability to engage organisations into a conversation about their own *design legacies* and the implications these have on their ability to fulfil their vision or purpose (p. 221). This paper will describe how the tool has been developed and tested with a global company, then reflect on its potential use and development to support manufacturing organisations of different kinds to reflect and act on their own evolution.

Parallel Evolution of Service, Design and User Engagement

Based on literature reviews, we identified three macro stages in the parallel evolution of Service, Design and User engagement as below.

Stage 1. Service as Added Value and Product Design

The interest for services as a sector is a contemporary phenomenon given its only recent impact to the GDP growth of most developed economies. As a result of industrialization, most research and studies have been initially focused on manufacturing and technological innovation. Service companies were considered as “laggards” or a burden on manufacturing and their advent as a manifestation of a risky process of de-industrialization (Miles, 1993). They were described also as not productive, similar to labour cost, which are thought to generate what Baumol and Bowen (1966) called *cost disease*, meaning an increase of salary without an increase in productivity.

This mind-set and perspective centred on manufacturing and products have recently been described as Goods Dominant Logic (GDL) (Vargo & Lusch, 2004). This signifies a business perspective that considers value as embedded and added to physical entities that are then exchanged. A GDL promotes a company-centred perspective, focused on its own resources and technical capabilities as the value is finally determined by the producer.

In this era, the focus of innovation was on products as tangible offerings and manufacturing processes. It concerned technology-driven innovation that could introduce new products in the market or enhance productivity and cost-efficiency in the manufacturing system and logistics. Design had a limited role in this process. Designers worked for “styling” of the new technologies to be visually attractive and well-functioning. According to the Design Ladder model by Danish Design Centre (2003), design as styling is only relevant in terms of aesthetic considerations such as style, appearance and ergonomics.

Users play a small or limited role in this design focus. Designers are perceived as creative individuals who use their own style and sensitivity to interpret society’s trends and offer novel solutions with no necessary employment of user studies (Verganti, 2009). Users are considered passive recipients of products and service offerings. The involvement of users in the design process was very limited, if any. Marketing may use statistics on target user segment and market trends as input to design. They may also conduct focus groups or go to public places with visual representations of their new products, asking people’s preferences. For usability testing of new products, users were invited to laboratories and perform given tasks.

Stage 2. The Advent of Service Economy and Service Design

Over the last fifty years there has been a gradual shift in the role and conceptualization of services as a sector within contemporary economy that has led to the introduction of the concepts of a *post-industrial society* (Bell, 1973) or *service economy* (Gershuny & Miles, 1983). During this period, services moved from being considered a peripheral activity to the mainstream manufacturing led economy, to become the main driver for both economic and employment growth in most of the developed countries.

Attention into service innovation started in the ‘80s, with a first acknowledgement of differences in service life cycles (Barras, 1986) and new service development (Edvardsson & Olsson, 1996). These studies emerged and developed to support a shift from manufacturing-centred models of innovation to dedicated ones reflecting the specificity of services such as the emphasis on the soft dimensions of service innovation (Tether, 2005), or its interactive (Djellal & Gallouj, 2001) and *ad hoc* character (Gallouji & Weinstein, 1997).

Design has been gradually shifting its attention towards services in the ‘90s. The object of design in Service Design shifts from products to services whose characteristics are described with the IHIP model (Zeithaml et al., 1985). Service designers design tangible and intangible touch points and the relations of touch points into a journey and a system. The focus of their work here is to design service interactions, which provide better experiences for users.

Consequently, human-centred design process and methods have been adopted in Service Design (Meroni & Sangiorgi, 2011) with industrial and interaction designers entering this new field with their tools and methods. Service designers are involved in the early phase of the innovation project to identify problem areas. They visit the sites where users experience services and observe their behaviours. Service designers could also observe users’ daily life to have a holistic understanding of their needs and desires. Ethnographic methods, such as shadowing, contextual inquiry, or video safaris, are used for this purpose.

Service Design in this approach considers users no longer as passive recipients but as “experts of their own experiences,” providing valuable contributions to the design and innovation process. This view has led to the direct involvement of users in the design process as “co-designers.” Typically, in workshop settings, users share their experiences and express their opinions and ideas with the help of visual and creative techniques (e.g. Sanders & Stappers, 2008).

Stage 3. Service Dominant Logic and Design for Service

Recently the emphasis on distinguishing services as a market offering from products has lost relevance; the interest instead has moved toward integrating studies on products and services into a higher-level framework. As Gummesson suggested, *customers do not buy goods or services: They buy offerings which render services* (Gummesson, 1995, p. 250).

In service innovation studies, this shift is referred to as the Synthesis approach (Droege et al., 2009). This approach recognizes how the learning from studying service companies can illuminate aspects and dimensions of innovation happening within manufacturing, which have been mostly neglected and not measured.

Services in this perspective are proposed as *a conceptual framework within which to think in a different way of value creation and does not entail a distinct set of activities* (Ramirez, 1999, p.54). The original dichotomy between products and services is resolved by proposing a higher-order concept of “service” as a singular term, referring to a way of thinking or logic. Vargo and Lusch (2004) describe this shift with the concept of Service Dominant Logic (SDL) as opposed to a GDL. Grönroos (2008) also introduces what he calls the Service Logic (SL), *a perspective on how, by adopting a service approach, firms can adjust their business strategies and marketing to customers’ service consumption-based value creation* (p. 302). Both terms – SDL and SL – refer to a shift from an offering-oriented and provider-centric perspective on businesses to a value co-creation and customer-dominant one (Heinonen et al., 2010). In this sense the focus they propose is not on what the firm produces as an output, but how it can better serve customers and support their own value-generating processes (Lusch et al., 2007).

Different from Service Design that was originally concerned with the shift of the object of design from products to services, Design for implementing a SDL advocates a new approach to innovation. Designers work in a SDL *“when they transcend the kind of output they might generate and focus on the outcome and the approach to innovation, working with and within organisations to help them become more dynamic and customer centric.”* (Sangiorgi et al. 2015, p. 58).

Also the consideration that organisations can only generate value propositions, reinforces the recent idea that designers can only design the conditions for future actions to happen (Manzini, 2011), facilitating users’ own value creation processes. Users’ role in Design for Service extends from contributing information and ideas during the design process to participating in the co-creation of services, while design tools help to collaboratively anticipate and experiment with possible futures (e.g. experience prototyping). Table 1 summarizes the parallel evolution of the understanding on service, design and users from Stage 1 to Stage 3.

	Service	Design	Users
Stage 1: Perceptions on service as added values and product design	Service as an added value to manufacturing	Design for different kinds of products (graphic, communication, manufacturing product, or interactive device)	Users as passive recipients of products and service offerings. Limited involvement as statistic data and prototype tester
Stage 2: Perception on service, design and users in Service Design (with Good Dominant Logic)	Service as a market offer, and as an engine for growth and employment	Conscious Service Design applied to the analysis and ideation of services	Users as experts of their own experiences, having valuable contributions to the design and innovation processes
Stage 3: Perspective in Service Dominant Logic	Service as business logic, a way of thinking and innovating	Design applied as an approach to support organisations to think and innovate in a human centred way	Users as co-creators of value, actively and creatively engaged with their own resources or organisations' resources. Organisations focus on providing support for users' own activities and purposes.

Table 1 Parallel evolution of perceptions on service, design and user

Development of the Tool for Inquiry

When combined, the three stages of the evolution of Service, Design and Users form a framework as a starting point to develop a *tool for inquiry* into organisations' own perception of their practices, identity, and future. We also added to the three categories a fourth one - Vision - to reflect on the existing perspectives on the future of the organisation. For each category we developed more specific questions that would inquire into how the understanding of Service, Design, Users and Vision is actually manifested and operationalised in the organisation. Table 2 shows the questions falling under each category.

Categories	Questions
Service	<ul style="list-style-type: none"> ▪ How do you describe your company? ▪ How do you understand service? ▪ Who is involved in service delivery?
Design	<ul style="list-style-type: none"> ▪ How do you understand design in your organisation? ▪ What role does design play in your organisation? ▪ Who is involved in design for services?
Users	<ul style="list-style-type: none"> ▪ Who are your users? ▪ What is your understanding of users? ▪ How do you interact with users? ▪ What type of information about users do you gather?

	<ul style="list-style-type: none"> How do you engage users in the innovation process?
Vision	<ul style="list-style-type: none"> What is your vision on service innovation? What is the reason for change? Where does the initiative come from? What is the focus of change? What level of organisational support is there for change?

Table 2 Questions under the categories of Service, Design, Users and Vision in the Tool

Answers would then be given by positioning a marker between stage 0 and stage 3: stage 0 referring to a status in which there is no service provision and no direct contact with users or a view of design as related to products, and stage 3 representing a state where a Service Dominant Logic is implemented and manifested in the way Design is used and users and other stakeholders actively engaged and interconnected in value co-creation.

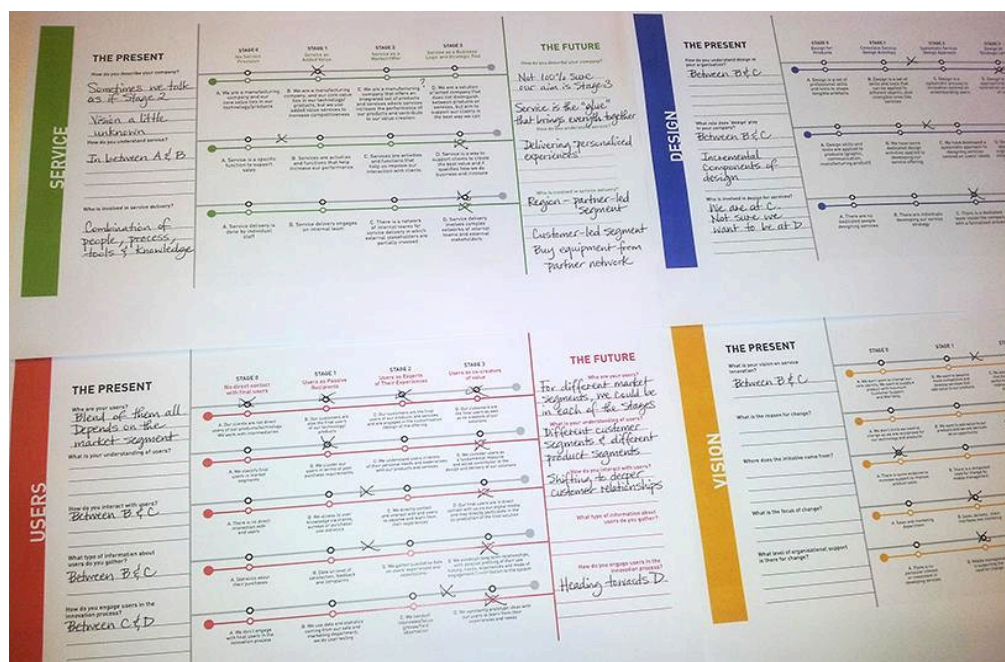


Figure 1 The first version of the Inquiry tool as used with the global company

The first version of the tool for inquiry (see figure 1) can be thought of as a canvas on which the interviewer and the interviewee take notes on and add commentary to the insights that emerge from the conversation. This initial version has been then tested with employees from a global company as described below.

Pilot test

The Tool for Inquiry was piloted with a large, established global business organization. The specifics of the company, interviewees, and business process of the company have been modified to maintain the anonymity of the organization, but this does not materially change or impact the findings. The organization is a product and services company that has embarked on a journey to extend its service offers from traditional product support offers to

those that assist the customer in the setup, configuration, optimization, and evolution of their systems. The company designs, manufactures and sells products and services to a wide customer range from large enterprise customers to smaller commercial customers.

Overall, five interviews were conducted, lasting between 60 and 90 minutes. Three of the interviewees were responsible for the customer product and worked in Customer Product Management; M (Director, owner of core technology requirements and different products that utilize the technology), T (Product Manager, owner of the core technology product focused on customer usage), and A (Program Manager, manager of the overall program for updates and releases of the product). The other two interviewees worked in Service Product Management and were responsible for two different types of service products; S (Director, owner of the service product that is used by partners and utilizes the core technology), and C (Product Manager, owner of the service product that is sold to customers which assists the customer in installing, configuring and using the product for maximum customer benefit). The positions of the five interviewees and description of the product and services they are responsible for are shown in Figure 2.

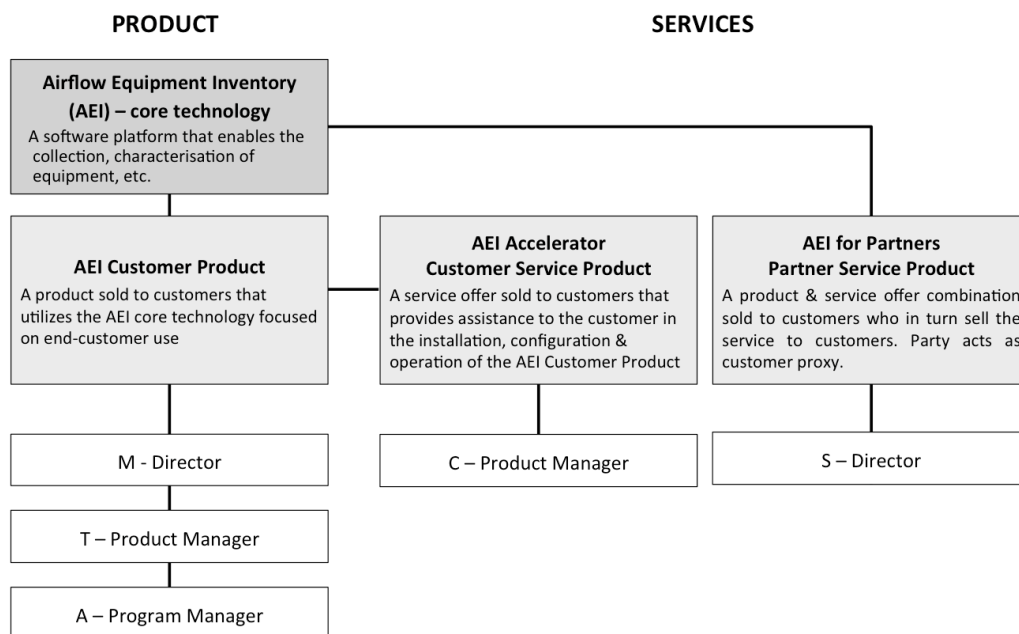


Figure 2 Interviewees' positions and types of offerings in the global company

The interviewees were asked to choose from the stages in the tool that they think best represents the company's status and future aspirations. After the choices were made for each question, they could further elaborate on the reasons behind their answers. All interviews were recorded and verbatim transcribed. Transcribed interviews were then analysed with respect to the interrelations of the understanding on service, user and design; looking for differences, patterns and interesting themes in the data.

Findings

We present our key findings from the pilot test of the tool as below.

Overall reaction from the respondents

All respondents commented that going through the stages in the tool was a useful thought-process about the maturity level of the company in terms of service-orientation. The description in each stage seemed to help the respondents make sense of and articulate how they understand what their company is about and is not about. By reading the description in each category, they were able to verbalize thoughts, for example, *“(reading the description) service is a specific function to support sales... we are definitely not in this stage.”* or *“Stage 3... you’re saying ‘design helps our strategy?’ I’m not sure what it means. Actually we have a strategy and then we go into the design.”*

For some questions, the respondents said that it would be better to do “context-setting” at the beginning with respect to the business model, division, or the market segment being assessed. As the company is a large organization with a very diverse range of product and service offerings, they found it challenging to decide which element was going to be the focus. This problem was partially overcome by giving multiple answers to the questions or choosing “in-between” stages. The section that the respondents were most comfortable with in the positioning was “vision”. On the contrary, the part they had the most difficulty with was “design”, due to their uncertainty about which activities and processes could be considered as design.

Different views to service

The respondents in general viewed that the company’s vision for service is to move to Stage 3, i.e. taking service as a business logic and strategic tool. However, their views to the company’s current status diverged. M and T (owners of AEI core technology and products) and C (owner of the AEI accelerator service) positioned the current status of company as a manufacturing company that offers an integrated set of products and services for increasing the product performance and contributing to company’s value creation (Stage 2). A (manager of the overall program of the AIE product) and S (owner of the service product for partners), however, said that the company is still in Stage 1 and their core value lies in the technology and products using added-value services.

S whose job is partner-focused, consistently showed his view of service as an added-value while products are the core focus of the company. According to S, service in the company is currently a specific function to support sales or increase company’s performance (Stage 0 & 1). Whereas the other respondents said that the company clearly wants to move to Stage 3, S thought that the company’s vision is a little unknown.

“...sometimes we talk as if we are at Stage 2...where the company’s vision is; I think it’s a little unknown. I don’t think- I’m not hundred percent sure our ambition is actually Stage 3.” (S – Director of the partner service product)

In elaborating on his answer, S emphasized that the company has a well-established channel model and is very reliant on those channels that comprise a wide range of partners (resellers).

The reason behind the difference in his choice may lie in his belief that becoming “services-led” would disrupt the channel centric business model of the company.

Different views to design

It appears that the company does not have a shared definition of what kind of work is referred to as design. The respondents felt unsure which team or which type of work they could frame as design, as various teams have different types of work for product development and customer involvement. In addition, as the tool appeared to focus on service as a topic of inquiry, the respondents who work in the product team, representatively, M and T, showed uncertainty to answer what role design plays for service and how.

“What do you mean by design in this area? I don’t know how to answer this section...By design, do we mean my user experience team who are focused on the customer journey mapping or do we mean the architects who are responsible for taking the business requirements, the outcomes in the customer of the journey and mapping it into those areas? I don’t know if either of those fit in design so I’m not quite sure what’s meant by this.” (M)

“You’re asking specifically about service offering, so I don’t have a lot of insight into a service offering that has no tangible product...We have a systematic approach for designing services, but is that centered on user needs? That I would have a hard time giving you insight.” (T)

Although all respondents described design as a systematic approach for the development of offerings in the company, we also found that their understanding on ‘who is / should be involved in design’ diverged. M and T who manage the core technology positioned company’s current status and vision between Stage 2 (“there is a dedicated team inside the company with a formalized process”) and Stage 3 (“we have service oriented innovation process and strategy involving all levels of the company”).

“I think the company is sort of structured in a way that services and product delivery were separate for so long that now it’s hard to say that they’re actually, you know there’s an aspiration for integration but I would say we’re not there yet.” (T)

C whose job focuses on service, described his view of design as a holistic development process, which involves collaboration among different teams (engineering, marketing, product development, sales etc.) and all levels of companies (across executive level and frontline staff - “worker bees” in his terms).

In contrast to the responses described above, S whose job focuses on partner program development seems to understand design as ‘the development of things.’ His understanding of design seems to be product development-oriented where efficiency on development and implementation is important. In S’s opinion, the company does not want to involve a lot of people and resources in the development. To the question of ‘who is/should be involved in design’, S responded, *“We are not at Stage 3 (We have service oriented innovation process and strategy involving all levels of the company) and I’m not hundred percent sure we want to be at Stage 3...’all levels of the company’.”*

Limited Recognition of User Engagement

In their responses to user definition and understanding, the respondents addressed issues related to multiple and relational connotations of the term “user” in the company. This is mainly because the company has a tiered distribution model that deals with different types of customers, including final users and partners (resellers).

“There is a final user of our product in general. But like I said, we have a tier distribution model where we have direct value added resellers who buy directly from the company, but then they resell the product or service to a customer.” (T - owner of the core technology product focused on customer usage)

We found that their different understandings of users are related to the nature of their work. For example, S deals with the service product used by partners that are proxy of final customers consuming the outcomes of the service. S mostly looks at the partners in his work and thus his understanding of the final customers is through these partners. He positioned company’s understanding of users in ‘clustering users in terms of past purchase requirements and market segment.’

Even though the respondents talked about importance of understanding users, they do not seem familiar with the notion of user engagement in the innovation process, what it means in practice and how it benefits. They did envision that users should be co-creators of solutions and services from the company need to support their value creation. However, when it comes to actual practice of user engagement, there was lack of conception on direct user engagement in the solution creation. In other words, users are still conceived as informants that the company employees may meet and gather ‘data’ from. The culture of expert-oriented development seems to remain strong in the company.

“We definitely interact with customers using digital media but they are not directly participating in the co-production of the final solution. We take input, we go out, we produce it, and then they consume it. What we like to do is, as we are in the development process, to get feedback from customers. I’m a product manager, so I work with the developer, we’re getting to the point where through the development process, very iteratively, we get feedback as the product management team. That’s just sort of getting and we would like to transition that at some point to customers as well.” (T - the product owner of the core technology product focused on customer usage)

C’s answers to user engagement were along similar lines. Whereas C showed a clear vision of the company and service to support customers’ value creation, his understanding of users and user engagement did not seem aligned with his logic to service. According to C, the company understands users through classification by market segments, and his wish is to have understanding of users’ personal needs and experiences (Stage 2), rather than viewing them as contributors to company’s solutions (Stage 3).

Interrelations of the understanding of service, design and user

In identifying differences in respondents’ views to service, design and user engagement, we found that how one understands service is related to his view to design and user engagement. We also found that this interrelation is in line with our framework of the parallel evolution of service, design and user engagement.

For example, it would appear that S has a good-dominant logic to company's current status and vision. He described that the company's core value is in their products and services is added-value, as a specific function to support sales and company's performance. His vision for the company remains in the manufacturing company that delivers product-service systems, rather than a solution-oriented company that does not distinguish between products and services. With this view, he understands users through clustering them in terms of past purchase requirements and market segment that the company delivers products and services. S thus considers design as a set of skills and a systematic process for the development of things to meet such requirements by market segment, rather than seeing its role for user engagement. For him, design is done by a dedicated team inside the company compared to holistic approaches involving different levels of the company.

Different from S, it appears that C views a service as an integrated solution for customers to create value and believes that the company should move toward a solution-oriented company. For this, service delivery in company currently involves a complex network of internal teams and external stakeholders, according to C. In fact, C's job responsibility is to manage the customer service product that assists the customer in installing, configuring and using the product for maximum customer benefit. C had a broader, inclusive view to design as systematic approaches that are done to support customers to achieve '*certain outcomes*', which then needs to involve different levels of the company – from '*high-level*' design that sets strategy by managers to '*detail*' design for hardware and software design, delivery and marketing strategies – and different teams – across delivery, engineering, finance, legal, marketing and so on.

Discussion

This first application of the inquiry tool enabled us to identify a possible scope of the tool as a 'conversation piece', which is to explore the level of (mis)alignment of different organisational departments in their understanding of where they are and where they are going to in relation to service design and development. When situations exist like that identified during the pilot the conditions are not conducive to effective development and delivery since there is contention over resources, messaging, and planning.

Correcting this (mis)alignment is particularly relevant to business leaders who have the mission to transform their business from selling products and technology, to delivering customer outcomes through integrated solutions of products and services. The required shift in culture of the organisation cannot be underestimated. The challenge for the business leader is to move away from the *In-Side* out thinking that tends to dominate technical organisations that have excelled in engineering and product design. To succeed in delivering product/service solutions an *Out-Side* in approach must be adopted in order to ensure value creation in the customer's or industry's supply chain. This requires collaboration between product design, the service delivery team, and most importantly the customer who is part of the co-creation process. For product organisations this requires a significant mind-set change. Not only adding service design to their product design expertise but in merging the two disciplines so that outcomes and results are seamlessly and profitably created for the customer and themselves.

This tool can be used as a small part of this mind-set change process by those responsible for delivering this transformational change. The process of taking different groups of an organisation through a structured discussion on the differences in the organisations focus, resources, and capabilities can be identified. Including different management levels and functions in the process can facilitate the development of an organisation's perspective in relation to:

- Role of services with the corporate growth strategy,
- The implications to customer relationships,
- How product service solutions are designed and deployed, and
- Vision and desire for change

This assessment then can act as the catalyst to develop a common vision of the desired state, and a detailed action plan as to how it can be achieved. Indeed the discussion in the case study highlights this very point.

The responses from T and S should be of particular concern to an organization where those responsible for product/service management are also responsible for design. Questioning what design is (T) and the lack of inclusion of users in the design process (S) indicates trouble for a company that intends to grow the business based on Service revenues. There is clear and obvious evidence, both in the literature and in practice, of the impact of including users in the design of things.

From a service design evolution perspective and the difficulty of the participants to use the method provided and position their understanding of design, could be less indicative of the structure of the tool and more representative of their lack of clarity on the company's current services and service design strategy. Or a lack of a concrete, well-articulated overall service design strategy for the company.

This lack of clarity or rooted *worldviews* can be an inevitable condition for a very large organisation that is aiming and working for a significant change in the way they present themselves to and operate within the market; we therefore suggest how the tool could be used to unearth and make these core differences and (mis)alignments visible and more tangible; following dedicated activities could then support the organisation to discuss the implications of these different perceptions across the three interrelated areas of service, design and user engagement. We will use these initial insights to inform the design of these activities, while we aim to refine the tool and use it with other organisations possibly of different size, sector and evolutionary stage.

Acknowledgement

We would like to thank the International Society of Service Innovation Professionals (ISSIP) for enabling this Special Interest Group work and discussions. Deniz Sayar gratefully acknowledges financial support from The Scientific and Technological Research Council of Turkey (TUBITAK) - International Doctoral Research Fellowship Programme (2214A), Grant number 1059B141400743.

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Revisiting PSS and service design in the light of the SD-logic

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Abstract

Researchers and practitioners have increasingly recognized the importance of offering value propositions to customers that enable value co-creation as discussed in the service dominant logic (SD-logic). SD-logic recognizes customers as active co-creators and posits that products and services are only *means to an end*. Also, different approaches, methods and tools have been developed to design value propositions however they still lack to explicit the SD-logic principles. The design of solutions that provide value-in-use is at the centre of both Product Service System (PSS) approach and service design (SD). Whereas PSS focuses on designing required functions and aims at sustainability, embedding a more organization-centred approach and problem-solving way of thinking; SD adopts a more human-centred perspective for creative enquiry and focuses on the customer experience, orchestrating interactions between different actors that engage over time, in a complex socio-technological environment. Although SD becomes more established as a discipline, it tends to focus on the early stages of the design process and could further expand its impact if integrated with current organizational innovation approaches. Moreover, PSS design is currently well known in industries and similar principles may be shared among these disciplines. However, so far, these approaches have not been fully integrated. This paper analyses the PSS and SD approaches in light of the SD-logic. It attempts to provide a more comprehensive discussion about these two approaches and proposes a conceptual framework for integrating PSS organizational point of view; and SD human-centred focus to design better service.

KEYWORDS: service design, product-service systems design, service dominant logic

Introduction

The recent development of the service dominant logic (SD-logic) literature reframed service and recognized the customers as active actors that integrate and combine resources to co-

create value (Vargo & Lush, 2014; Vargo & Lush, 2008). From this perspective, customers' roles are evolving from passive recipient to active co-creators of their own service experiences. Although SD-logic contributes to understand the what, how and by whom value is co-created, its high level perspective is difficult to *operationalize* (Wetter-Edman et al. 2014). Recent development in the service design and service innovation literature integrated the premises defined by Vargo & Lush (2008), to form a co-creative and human-centred view of the SD-logic; however such approach remain only partial (Maffei et al. 2005) and could further be integrated with organizational approaches to design new and/or better service. Also, SD-logic posits that value is only determined by customers, in the use-stage of the design process (Vargo & Lush, 2014). As such, companies provide potential value propositions (Grönroos, 2011) and should look for new ways to stimulate longer-interaction with their customers by evolving their design process, business directions and service offerings (Oliva & Kallenberg, 2003), while better incorporating reflections about design thinking practice (Kimbell, 2011a; 2011b). As a consequence of the product-saturated developed world, organizations started to servitize combining services to product offerings (Baines et al. 2007; Baines et al. 2009); and working within larger organizational networks and partnerships (Manzini et al. 2004). The Product-Service System (PSS) approach (Baines et al. 2007), is currently well-known in manufacturing industries; and aims to provide functionality and performance to customers through integrated offers. However, organizations acknowledge that they need to better understand what value is, from their customers' perspective (Baines et al. 2009).

Similarly with Kimbell (2011a; 2011b), this paper recognizes that different approaches to conceptualize service design exist; and focus on the analysis of two of these approaches and their understanding of design to better incorporate service in industries: the product-service system (PSS) organization-oriented approach, and the service design human-centred approach¹ in the framework provided by Kimbell, 2011a). Regardless of their distinct roots, PSS and SD characteristics should be further explored in the light of the value co-creation concepts put forward by the SD-logic. Contributions can be two folded: first, the analysis may provide important findings to better understand design and designing within different context. Acknowledging the differences and complementarities of the approaches may provide richer interpretations; and two, verifying the relation of the PSS and SD to the SD-logic can support the creation of a more unified/integrated vision of the design thinking process that better leverage user- and organizational- co-creation perspectives. To achieve such aims, the paper analyses PSS and SD characteristics, methods and tools; and provides a comparison of the SD-logic value co-creation concepts within those fields.

This paper is organized in five sections. First, a brief introduction to the SD-logic is provided. Then, PSS and SD approaches are reviewed. In section three, the SD-logic concepts are discussed and compared with the design approaches selected. The reflection and discussion section makes an overview of the main results and proposes an integrated view of the PSS and SD approaches with the SD-logic perspective. The last section presents implications for theory and practice.

¹ In this paper the terms SD or design for service (Meroni and Sangiorgi, 2011) to refer to the human-centred design approach of service design

SD-logic as the driver for change

Customers are more demanding and want to find new ways to service their personal needs, either through the means of products or services; to co-create value and reach satisfaction as well (Michel et al. 2008; Manzini & Vezzoli, 2003). Service are expanding worldwide and are claimed to bring economic, marketing and competitive advantages to organizations (Oliva & Kallenberg, 2003). As such, organizations are becoming more interested in incorporating service in their offerings.

For several decades, services have been characterized as different from products. The IHIP was the best known and used model whenever characterizing services was required (Edvardsson, 2005). However, it has been criticized since it describes services according to what they are not; and doesn't reflect what services are in practice (Wetter-Edman, 2009). Moreover service research should focus on differences in how to portray value creation with customers; and not on the differences between goods and services since it limits its potential (Edvardsson, 2005).

SD-logic. Recent developments in service research and marketing emphasized services' value co-creation nature. For Vargo & Lush (2008) services require the application of specialized competences through deed, processes and performances for the benefit of another entity or for the entity itself; and launched what they called the *service-dominant logic*. SD-logic provided a new root to emphasize the customers' role in co-creating value-in-use and -in-context, to improve his/her systems' adaptability and survivability by integrating operand (e.g. knowledge and skills) and operant (e.g. products) resources in different ways (Vargo & Lush, 2008).

SD-logic consists of a radical change and fundamental new perspective to value co-creation between service systems (Vargo & Lush, 2008; Vargo et al., 2008). SD-logic attempts to clarify how value is co-created and stresses the importance of the customers' role in the value co-creation process. Vargo & Lush (2014) highlight that customers are always value co-creators, which indicate that organizations *per se* cannot create value, but rather co-create it with their customers and other actors (stakeholders). Organizations have the opportunity of co-creating value in their customers' sphere of processes and activities (Grönroos, 2011; Vargo and Lush, 2014). As such, firm-focus approach; as the roles and responsibilities in design process must change.

Towards an integrated approach to explicit SD-logic principles. SD-logic axioms discussed by Vargo and Lush (2014) provide a high level perspective of service however there are some difficulties for achieving implementation (Wetter-Edman, 2009). Recent work attempts to integrate SD-logic guidelines with more practice-based disciplines such as service design (Wetter-Edman, 2014). However, design researchers acknowledge that the creative and human-centred approach of service design should find synergies with current organizational innovation approaches (Sangiorgi 2009; Maffei et al. 2005) to have greater impact in companies and further expand the boundaries of the discipline.

Organizations acknowledge that the commoditization of markets makes current differentiation strategies (product innovation, technological superiority, low prices) more difficult to maintain (Michel et al. 2008), and want to evolve their strategies to compete, adapt; and stay relevant. As such, researchers and practitioners developed strategies to servitize companies; and their offerings as well. Servitization and the product-service system design (PSS) approach are currently well-known in industries however they acknowledge that value-perception of PSS offerings could better match customers' needs (Baines et al. 2009)

and further integrate their experiences. As such, PSS could benefit from the co-creative view of SD and the systemic view of the SD-logic perspective.

Approaches to conceptualize service design

This section focuses on analysing servitization in manufacturing, the PSS design and the service design approaches which are concerned with value-in-use for customers; however from quite different perspectives. It analyses the disciplines' backgrounds; as their methods and tools.

Servitization. Servitization is currently well known in the manufacturing industry; and can be defined as a transition process (Oliva & Kallenberg, 2003; Baines et al. 2009) where companies adapt and systemize their competences; and create value by adding services to their products (Baines et al. 2009) thus providing a combination of components named product-service systems (PSS). Oliva & Kallenberg (2003) assert that organizations evolve their strategies progressively, depending on the product technology and customers' adoption maturity as well (Oliva & Kallenberg, 2003; Kujala et al., 2010). One well-known strategy for servitization consists of consolidating existing product-related services; entering the installed base service market; expand relationship and/or process-centred services; and progressively take over end users' operations (Oliva & Kallenberg, 2003). The authors propose a shift from transaction- to relationship-based interaction with customers; evolve contracts from short- to long-term; and focus design activities based on the end-user processes and improve product-efficiency and effectiveness. However, it should be noted that general PSS approaches adopted in product-focused industries tend to result in deepening specialized technical knowledge, or developing special competences for operating complex products that would have high costs in terms of operational failure (Tukker, 2004; Tan, 2010); as such the customers' participation in the co-creative activities become less evident. Their problems are framed and established as *to-be-solved* by organizations.

Product-service systems background. PSS is closely related with servitization and is defined as products and services combined in a system to deliver required user functionality, or value-in-use, while using resources more efficiently (Baines et al., 2007; Baines et al., 2009). PSS first evolved with a strong environmental and operational mind-set. As such most contributions emerged in journals related with cleaner production and sustainability (Baines et al. 2009; Beuren et al. 2013). There are different types of PSS (product-, use- and, result-oriented; Tukker, 2004). Product-oriented PSS are focused in product plus add-on service offerings (e.g. maintenance, repair); Use- and result-oriented PSS are focused in providing the required functionality or performance to customers. As such in these latter PSS offerings, the product component remains in ownership of the company; whilst customers only pay for the usage or performance. Use- and result-oriented PSS are said to have more potential to reduce environmental impact while bringing higher value to customers.

PSS methods and tools. Over the past decade several researches on designing PSS have been developed, resulting in methods and tools and contributions of different fields of knowledge to design solutions. As the researchers of PSS come from a typical cleaner operations background, most approaches identified aim to increase products life cycles by adding services and improve product function availability, efficiency and performance when being used in-context (e.g. Xerox paper management system, Rolls-Royce's Power by the hour availability contracts) (Baines et al. 2007).

The Total Care Product (TCP) (Alonso-Rasgado & Thompson, 2006) integrates product and service design process to develop TCP, starting with marketing assessment, concept development, system design, test and implementation (Alonso-Rasgado and Thompson, 2006). The authors propose to use Quality Function Deployment to relate customer needs to product requirement and service attributes; and activities to be undertaken by the company as well. The concept design stage begins once the customer requirements have been ranked, enabling to sketch attributes, functions, product and services. Also service testing is undertaken in the latter stages of the process so customers can have a better idea of the proposed service. They propose a fast-track design process that clarifies the customer-supplier interactions to add value to the product in the early stages of the design process (business ambition, business solution package, core definition of the offering, product modelling; and risk assessment) (Alonso-Rasgado & Thompson, 2006).

The MEPSS method proposed by van Halen et al. (2005) is a systematic and strategic method that starts by analysing the company's resources and, progressively, tries to eliminate "waste"; and identify the most promising alternatives to optimize the product-use by engineering and system behaviour analysis. Similar with the TCP, the MEPSS' main stages consist in making a strategic analysis, exploring opportunities, develop ideas, develop the PSS solution; and prepare for launch (Halen et al., 2005).

Although these approaches have their merit, they tend to emphasize the good-dominant logic for designing solutions; and reflect the dyad relationship of customer and suppliers. Customers' role tends to focus on providing insights; or testing solutions, which also was interpreted as limitative. Later PSS research acknowledge customers' acceptance of PSS as a challenge. Rextfelt & Örnas (2009) developed a method based on activity theory that aims to inform about the customers' perception of PSS solutions to reduce uncertainties regarding acceptance. Their framework consists in understanding desirable and undesirable activities. PSS solutions are refined according to what customers want to be *enabled to* or *relieved to* do. Although the approach has the merit of observing customers more closely, they are still viewed as providers of insights or testers.

Also, authors emphasize that current PSS approaches may tend to result in cutting-edge technology (product and process optimization) but PSS radical innovation shouldn't necessarily lie in techniques but rather in the way more-or-less existing technologies can be systemized (Manzini & Vezzoli, 2003). Other contribution coming from the service design field suggest to analyse PSS from a more systemic approach; and propose collaborative approaches (build and reconfigure partnerships) to use resources more efficiently, throughout product's life cycle (Manzini & Vezzoli, 2003; and Manzini et al., 2004; Morelli, 2002; Morelli, 2006). Manzini & Vezzoli (2003) identify three classifications for PSS evolution: services providing added value through product life cycle; services providing final results to customers; and enabling platforms for customers (e.g. car sharing). Also, Morelli (2006) focuses on the service-network component to the PSS field. The proposed tools identified aim to design alternative scenarios (map of network of actors, hypothesis generation; and use cases) and the resources required for successful solution delivery (stakeholders' matrix) (Morelli 2006). The focus of this work however, is on analysing service stakeholders (or actors) and their capabilities, rather than on the integration of customers' experiences, resources and requirements in the design process.

Overall, PSS design methods tend to reflect a dyad relationship between customers and suppliers. Despite later research emphasizing an actors' constellation perspective to design solution, the customers' experiences, resources and requirements can be further integrated in

the design process to design better product-service solutions, and systematize the process to design for value co-creation as well.

Service Design background. SD is defined a multidisciplinary, creative, human-centred discipline focused on analysing, envisioning, designing and iteratively refining the quality of a service by analysing and designing the interactions between its tangible and intangible elements (product, technologies, people, and structures) to create alternatives ways-of-doing (Manzini 2009), bringing ideas to life (Patrício & Fisk, 2013) and transform determined situations into preferred ones (Simon, 1969).

SD is a discipline that slowly evolved from the interaction design and established itself as an ordinary practice (Holmlid, 2009); and now merges design disciplines (interaction design, product design, design ethnography) with service management, marketing, operations (service backstage) and information systems (Patrício & Fisk, 2013). The discipline is broadening its scope and deepening its knowledge; and has developed tools and methods that explore actor-to-actor, actor-to-system; and system-to-system interactions (Sangiorgi, 2009). SD adopts a fundamental user-centred and participative approach to design for service (Holmlid, 2009); and has been developing methods and tools to better reflect customers' experiences in the design process. The next paragraphs discuss some of those methods.

SD methods and tools. SD is a discipline steamed from practice and has evolved methods and tools able to express important characteristics that facilitate, through creative and visual-thinking tools, the prototyping, test and refinement of service experiences (Stickdorn & Schneider 2012). Scenarios, storyboards, customer journey, use case, persona, experience prototype, among other tools contribute to visualize and test the service experience from the user point-of-view and to understand the detailed specifications required for co-creating experiences (Stickdorn and Schneider 2012). Also, other works on SD focuses on customers' experience and system perspective.

Teixeira et al. (2012) propose the Customer Experience Modelling method (Teixeira et al. 2012) to represent the different aspect of the customer experience through a diagrammatic representation. It enables to understand customers' experience by integrating and providing a holistic view of customer's flow of activities, contextual elements (artefacts, services and systems) and requirements. Also, by focusing on the analysis customers' tasks and operations through Activity Theory (Mickelsson, 2013); and understanding of customers' experiences, problems and needs, the Multi-level Service design (MSD) Method (Patrício et al., 2011) improves the connection between customers' experience and SD components in three levels: the service concept (what is the offering), service system (which resources are needed) and service encounter (how are they connected) (Patrício et al., 2011).

Service concept definition evolved to reflect more than the supplier view of the service (core and supplementary service); to encompass a network of actors that exchange service-for-service to provide benefits or value (Vargo & Lush, 2014). Although the service concept is a central aspect of service design, there is a limited attention regarding a practical design method to define it (Goldstein, 2002).

Also, SD is defined as partial approach (Maffei et al., 2005; Alonso-Rasgado & Thompson 2006) and tends to focus on the early stages of the design process (Yu & Sangiorgi, 2014). To be effective and further expand in industry, it should be integrated with existing organizational contemporary innovation perspectives (Maffei et al., 2005) to form a coherent approach to design value propositions for value co-creation.

Comparing SD-logic concepts in PSS and Service design literature

As mentioned earlier, the SD-logic axioms defined by Vargo and Lush (2014) clarify the nature of value co-creation; and four fundamental concepts extracted from those axioms can be further discussed: value, co-creation, resource integration; and actors and service systems' roles. This section discusses the concepts and reflects on how they echo on PSS and service design approaches.

Value. In SD-logic value is only determined by the beneficiary of the service (Vargo & Lush 2004). Value is the result of an interaction between customers with a service that translates into being or feeling better off than before (Grönroos, 2011). In PSS literature, value is determined in terms of value-in-use (Baines et al, 2007). As explained in the previous chapter, PSS' offerings focus in delivering performance and functional value (Sandström et al., 2008) as efficiently as possible (Baines et al. 2009). Moreover, other types of value (mental value as explained in Grönroos, 2011; Sandström et al. 2008) are left evident in PSS design. In SD, the value emerges as a result of a service experience which is determined from the customers' point-of-view (Meroni & Sangiorgi, 2011). SD attempts to capture knowledge about customers' emotions and activities as well (Mickelsson, 2013; Wetter-Edman et al, 2014; Meroni & Sangiorgi, 2011) to better understand individuals' experiences and qualities (Wetter-Edman et al, 2014) which shape their perception of value. SD is inspired from that information to co-create new propositions.

Co-creation. SD-logic posits that value is co-created between different actors and service systems; and that customers are always part of the co-creation process (Vargo & Lush, 2014; Vargo et al. 2008). As such, companies can only make *potential*-value propositions that may become *real-value* if used in-context by customers (Vargo & Lush, 2014; Grönroos, 2011). In PSS literature, co-creation is not used explicitly. It may be used to refer to customers' participation in ideation sessions or workshops, to share ideas and insights in the early phases of the design process; or testing/refining the solutions. Also, PSS focus on functionality and performance tend to result in approaches focused in optimizing life cycle analysis; engineering and delivery processes; stakeholders' reconfiguration which are design activities that may not require involving customers. Similarly to SD-logic, SD approach adopts a fundamental human-centred perspective. It evolved participative techniques such as card games, role playing, and narratives, among others (Stickdorn & Schneider, 2012) to engage in a dialogue with customers and bring their experiences to the creative process (Wetter-Edman et al., 2014). Recent studies suggested customer participation to extend beyond the service process, involving them in learning and experimenting; engaging in active dialogue, collaboration, co-development with sellers (Mustak et al. 2013). As such, SD approach considers customers as active co-creators of their own experiences and empowers them through participation (Wetter-Edman et al. 2014).

Resource integration. SD-logic posits that value is co-created through resource integration. Actors can co-create value by applying either skills and knowledge on products, services or systems to exchange service-for-service (Vargo & Lush, 2014). PSS literature tends to focuses on the analysis and reconfiguration of organizational competencies (e.g. stakeholders' map); and the combination of products and services (resource integration) to deliver value. As such PSS still somehow, considers that static resources embedded with "frozen knowledge" that producers create and deliver which reflects the dyad interaction between firm and customers (Michel et al., 2008; Vargo & Lush, 2014). In SD approach resource integration happens during the use- and designing stage as well. It focuses on

peoples' lives and problems to stimulate their willingness to integrate their resources; engage in the co-creation and co-production process to image future systems (Wetter-Edman et al. 2014). It also aims to increase their resourceness (Grönroos, 2011), which is their ability to use the resources they have available to co-create value.

Actors, systems; and roles. In SD-logic, actors are all resource integrator (Vargo & Lush, 2004). PSS adopts an organizational constellation perspective. Stakeholders' motivation matrix; actors network (Morelli, 2009) techniques; or the Solution-oriented Partnership Methodological Framework (Manzini et al. 2004) are useful to understand the customers' situation, which partners may participate in the design and delivery of solutions, what is expected from them; and exploration of solution platforms. However, those solutions may not always result in more active customers. Solutions may enable or unable them to take action (Rexfelt & Örnas, 2009; Michel et al. 2008). SD acts upon a continuum where customers' participation evolves from consultation to active co-production activities (Wetter-Edman et al., 2014) and become conscious and active participants of the SD and delivery processes (Meroni & Sangiorgi, 2011). Recently in SD literature, the term user-centred, progressively evolved to human-centred design to consider the role of larger network of actors which go beyond the user (Meroni & Sangiorgi, 2011).

Reflection and discussion

Main overlaps and differences. The previous chapter described how S-logic concepts were understood in PSS and service design literature. Table 1 provides an overall comparison of the design approaches. As discussed, both approaches are concerned with the value-in-use for customers; however it echoes from different points-of-view.





	Service design	PSS	Overlaps Service Design / PSS	
<i>Value</i>	Value is defined as the result of a memorable service experience to customers	Value is defined in terms of value-in-use; focused in offering outputs (functions), while using natural resources more efficiently	Both are concerned with value-in-use. Whereas Service design focuses on the human component (emotions); PSS focuses on the functions provided	 no overlap
<i>co-creation</i>	Customers actively participate in the design process; they are considered fundamental	Co-creation occurs within organizational value networks; and may or may not include customers	Both are concerned with customers participation in the design process; however the purpose of service design is to empower; whilst in PSS is to serve (may lead to more passive customers)	 somewhat overlap
<i>resource integration</i>	Encourages customers to reflect upon, develop and use their own activities, knowledge and skills; and enable them to act in-context	Acknowledges the competencies of the value network from an organizational perspective; integrates operant resources (products, softwares) to create the offering	PSS tends to focus on competencies from a organizational perspective and <i>objectified</i> resources; service design studies customers' skills and knowledge (people's resources) to co-design and co-create future systems	 slightly overlap
<i>actors and systems' roles</i>	Studies users/customers activities, and interactions within their socio-technological world; attempts to empower them and develop more active roles	Organizational networks provide more-or-less integrated offers that may or may not require customers to be more active	Both acknowledge the complexity of networks; PSS organizational approach to design offerings may or may not take over some of the customers' activities; which may lead to less active customers	 somewhat overlap

Table 1. Comparison between PSS, S-design approaches through the SD logic

For PSS, *value* is about delivering a function (Baines et al. 2007); whilst in SD, the focus is on providing usable as well as pleasurable experiences (Wetter-Edman et al. 2014). *Co-creation* somewhat overlaps since customers are considered in the design process of both approaches; however PSS aims to analyse customers to better serve them; whilst SD aims to empower. *Resource integration* in PSS starts with a more strategic and organizational perspective. After

defining the function-to-be-delivered, PSS studies networks competencies; and sort of *leans* the product-service production and delivery processes to design an efficient system. The SD approach starts with people's experiences, activities; as well as their beliefs and dreams to increase their willingness to integrate their own knowledge and skills. SD-logic considers *actors* are all resource integrators. PSS adopts a partnership perspective, where predefined partners join efforts to tackle customers' problems; however the solutions may not always result in enabling platforms for customer. SD considers users as humans in context; that should be enabled and empowered to better serve themselves. In SD, actors are conscious and active participants.

Presenting an integrated framework to design for value co-creation. Further integration is required to better support the integration of product and service components, business processes and activities between actors and networks. PSS can be developed with different focus on business decisions, product planning and life cycle; and detailed design. As such, while designing PSS four levels should be considered (Tan, 2010) (figure 1). Also three dimensions of SD were identified (figure 2).

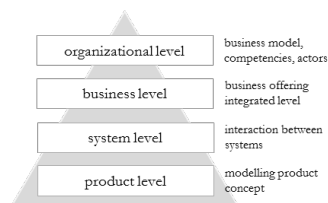


Figure 1. Dimensions to be considered whilst designing with a PSS approach (adapted from Tan, 2010)

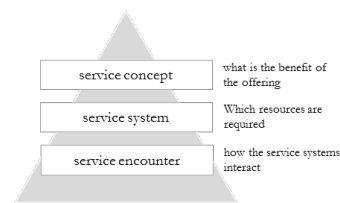


Figure 2. Dimensions to be considered whilst designing with a Service design approach (adapted from Patrício et al. 2011)

The framework presented in figure 3 attempts to better integrate the different contributions discussed so far; and is further discussed below.

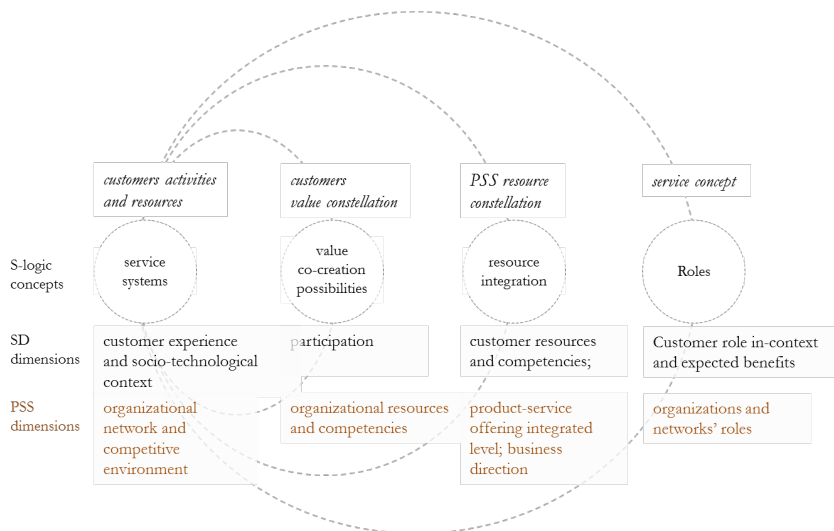


Figure 3. Proposed integrated approach for S-logic implementation

Explore systems and customers' resources. The framework proposed starts by understanding customers' context, activities, experiences, problems; and resources they have and how they use them. The initial stage is an important not only to reflect upon resources but also in resourceness (Grönroos 2011; Vargo & Lush, 2014) of customers as well (their ability to apply what they know to what they have available, to improve their well-being).

Understand and envision new value constellations. Customers can contribute with more than just “insights” for product/service development or usability test for evaluation of an offering. SD considers customers as “experts of their own experiences” (Sander & Stappers, 2008); as such they should be enabled to reflect on their own experiences through participatory and co-creation approaches (e.g. design probes, design games, storytelling, narratives). Customers will share knowledge based on what they have already experienced, and should be asked to share the expected outcomes of the new solution from their point-of-view (Ulwick, 2002; Verganti, 2013). Organizations specialized knowledge should complement customers’ resources; *what if* scenarios or prototypes should be stimulated to provoke divergent thinking.

Explore PSS resource constellation. SD-logic removed the need to distinguish between products and services; and instead proposed to look at solutions as a form of value-in use however such perspective requires to be operationalized. The PSS resource constellation is the interplay between value-in-use as defined by customers, and how they might be realized through means of operand or operant resources (product, services or systems). Customer, organizations and beneficiaries of the solution integrate their resources and competencies; the integration level of the offering, such as the business directions is discussed. Companies can provide more-or-less integrated offers depending on the activities that customers want to be enabled or relieved to do. New tools should be developed to further integrate customers’ and organizations’ resources; and explicit actor’s roles.

Define service concept. At this stage, the service concept is defined. In sD-logic, actors are all part of service production and delivery processes for value co-creation. As such, designing requires active collaboration between actors. The expected benefits and roles should be clearly defined for both organizational network, and for customers as well. Customers can expect more benefits within network if provided value propositions that enable value co-creation. As such, more than continuous refinement of efficiency, companies should work more collaboratively; and enable adaptability within networks.

Conclusions

Theoretical implications. PSS and SD approaches have different origins but are both concerned with value-in-use. As such their characteristics, gaps and complementary were discussed and a conceptual framework was presented. The framework hopefully contributed to better understand how to provide a higher integrated systemic value to customers through efficient resource integration (products-services and knowledge) and in ways that could be more meaningful for both organizations network and customers. In the framework presented, SD-logic enables to better understand what is value; how it is created and by whom. SD participatory and human-centred approach allows to better understand and involve customers in the design process, enabling them (and organizations as well) to understand how their competencies can co-create value in meaningful ways. Finally PSS provides the organizational and business perspective of solutions. PSS allows operationalizing the principles of the SD-logic and service ideas of SD into concrete products and services, from an integrated perspective.

Practical implications. Industries have long been working on transactional-interactions with their customers. As such their design process reflects a *one-way road*, with some feedback loops, when it comes to testing the solutions (e.g. user as tester and provider of insights in

the later stages of the design process). Moreover, service literature tends to focus on analysing and evaluating services in isolation or from a dyad perspective (van Riel et al., 2013; Jaakkola et al., 2015); as such further studies are required to analyse and propose new organizational product-service design approaches when it comes to designing product-service system offerings to enable value co-creation.

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Service Dominant Logic. Changing perspective, revising the toolbox

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Abstract

This paper analyses the perspective shift that has happened in service design practice with the introduction of the Service Dominant Logic. Three different levels of design action are presented with their methodological implications. In the fluid context where diffuse design, expert design and strategic design take place, relevant case studies are shortly presented in order to describe the designers' role in the value-creation process and the consequent necessary revision of his own toolbox.

KEYWORDS: Service Dominant Logic, infrastructuring, service design toolbox, prototyping

Introduction

The last decades have seen a substantial perspective shift in the design of services. This shift has changed the paradigm that frames the activity of designers. The early design studies were characterising services as *what is not a product*, therefore defining services through the properties of intangibility, heterogeneity, inseparability, perishability: the IHIP paradigm.

Since the early contributions to the debate on service design (Shostack 1984, Ramaswamy 1996) this paradigm was used to define a methodological approach and a set of tools for service designers, including blueprint (Shostack 1984), use cases (Morelli 2002) and service management tools (Normann 1991, Hollins 1993, Ramaswamy 1996).

The initial perspective that assumed services as the *product* of a design activity was however progressively changing, with studies focusing on the value co-production process (Normann and Ramirez 1994, Ramirez 1999), on interaction aspects (Pacenti 1998, Sangiorgi 2004, Parker and Heapy 2006) and on social aspects that could define services as a socially constructed activity (Morelli and Loi 2001, Morelli 2002).

The new dominant logic introduced by Vargo and Lusch (2004) was the definitive statement of a shift from a product-centric perspective to a perspective that focuses on the interaction

between the consumer and the service context, in which *value is defined by and co-created with the consumer, rather than embedded in output* (Ibid., p.6). This shift implies that the activity of design referred to services focuses on *Channels*, i.e. the environments in which services take place, *Objects*, i.e. the evidences of the services, *Processes*, the services' procedures, and *People* involved in the service, including their skills, roles and responsibilities (Koivisto 2009, Blomkvist 2014).

The fundamental change in the approach to service is illustrated by the Vargo and Lusch statement that *the enterprise cannot deliver value, but only offer value propositions*, that means that it *cannot create and/or deliver value independently* (Vargo and Lusch 2008), which implies that the enterprise, and the designers working with them, do not have on service the same level of control they had on products. They can propose the interface or the environmental conditions for the service interaction to happen, and design the infrastructure, i.e. the processes supporting the interaction (Secomandi and Snelders 2011), but they cannot exactly predict the outcome of the interaction happening through the service.

For this reason several contributions (Kimbell 2011, Meroni and Sangiorgi 2011, Wetter-Edman 2014) have stressed the difference between service design (or the design *of* services) and design *for* services.

The perspective shift is parallel to the deep transformation of economic systems. Here the big transformation has been emphasised, from an economy based on ownership of products to an economy focused on access to services (Rifkin 2000), or towards different forms of organisation that address the need for ecological efficiency, the need for new forms of social cohesion and the opportunities offered by a networked society, which promises new and unprecedented sources of social organisation. (IDA 2010). New services are emerging in this context that should support the new economic and social forms of organisation.

The new services are often originated by initiatives in the public sector because of the high demand to address urgent social or environmental emergencies, or because of an unprecedentedly pressing need in this sector to optimise the use of human, economic and environmental resources.

Public authorities are increasingly interested in a new approach that raises the efficiency of existing services or generates innovative services by activating citizens and involving them in a value co-creation process (Bason 2010).

This paper will explore such a shift with the aim of emphasising the changes in the designers' role and competences, and in the methodological toolbox they are supposed to use.

What is the SD logic changing?

The IHIP paradigm was qualifying services as a defined output of a production process, therefore it assumed a certain level of control by the service provider, which could use *prescriptive* strategies to lead users through the service journey. This approach is very effective in several service cases, because it helps organising services that clearly define a production process and an utilisation time. Services like shops, banks fast food restaurants flight services or hospitals have a quite rigid procedure that has to abide to strict regulations about hygiene, health safety or security. The description of such services uses *prescriptive* techniques that are providing precise instruction on how the stakeholders should behave in the various phases of the service journey. For this purposes blueprints, use cases and touch point maps are used

to make sure that the interaction between the user and the service meets the desired quality standards.

In those cases the users are *served* by the service personnel, which is fully in charge of the service quality. The responsibility for the design and the value creation process of such service is mostly, if not entirely in the hands of the service provider. Service design in those case is an activity for experts (managers, IT programmers, technical personnel, cooks, pilots, etc.), which work as *problem solvers* (Kimbell 2011) or *solution holders*, whereas users, the *problem holders*, are not supposed to contribute to the value creation process with their work or their knowledge.

The effectiveness of the new service logic grows with the increasing relevance of users in the value creation process and in cases in which the control of value creation is progressively shifting from producers to users or to communities of users, as shown in Figure 1.

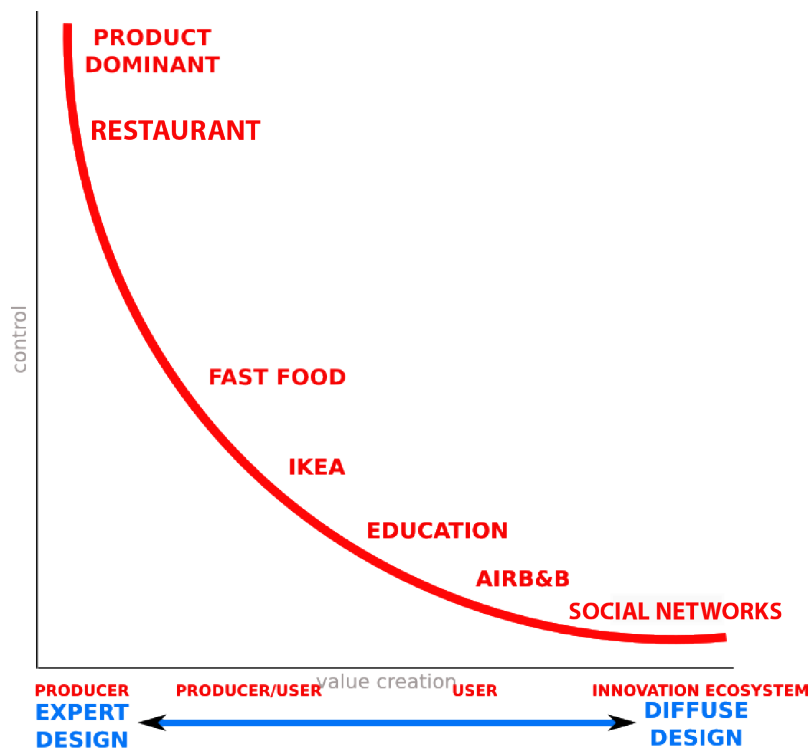


Figure 1 Services between product dominant logic and innovation ecosystems

Normann and Ramirez (1994) moved the focus of the value creation activity from the production phase to the use phase. The co-production of value is manifested in *offering to which several actors contribute by performing specific activities*, therefore offerings are *the result of myriad activities performed by many people dispersed in time and space*. Assets and resources (material objects, technologies, knowledge) available in offerings *have been combined in a systematic way in the end ensuring access to them for users*. Thus, in the final analysis, *whether customers buy a product or a 'service' they really buy access to resources*. (Ibid. p.48). They used the case of IKEA, to explain the way users can be considered as an active and crucial part of the value production process.

A relevant contribution to the shift towards a new perspective for service design comes from a number of initiatives in the public sector or for supporting social innovation that are based on social networking and a participatory approach to innovation. Innovation generated in certain social dynamics are often not the result of a planned action, but rather an emergence of the interaction between different actors and different forms of rationality. However,

Manzini and Rizzo (2011) discuss the way the action of designers can trigger or support innovation in such contexts by generating *tools for conversation*, or *framework projects* or even actions aiming at *large scale transformations*. Their aim is to explore ways in which designers can contribute to processes of innovation where the output of the design activity is a set of *design devices* (prototypes, mock-ups, design games, models, sketches). Such devices support the aggregation of a *socio-material assembly* (Björgvinsson, Ehn et al. 2010) in which innovation process at the social level are generated.

Levels of design action and methodological implications

When moving towards innovation ecosystem services become less prescriptive. They become the interface among users rather than being an interface between a producer and a user. Instead of providing specific outcomes they provide *relational qualities* (Hillgren, Seravalli et al. 2011) or *collaborative opportunities* (Cipolla 2012). Following the suggestion of Manzini (2015) we could talk about *diffuse design* when looking at the interaction among the actors in value process of value creation *in use*, whereas we should talk about *expert design* at the level of definition of the infrastructure to support the co-creation processes.

This calls for some reflections upon the possible methodological implication of such perspective shift. Does the Service Dominant logic imply the use of new methods in respect to the previous project-based approach? Are some methods more efficient than others in this perspective?

In order to understand the methodological implications of the perspective change three level could be defined, that describe the designers' role in the value-creation process: the level of interaction, or value-in-use, the level of infrastructures and support and the level of governance (Figure 2).

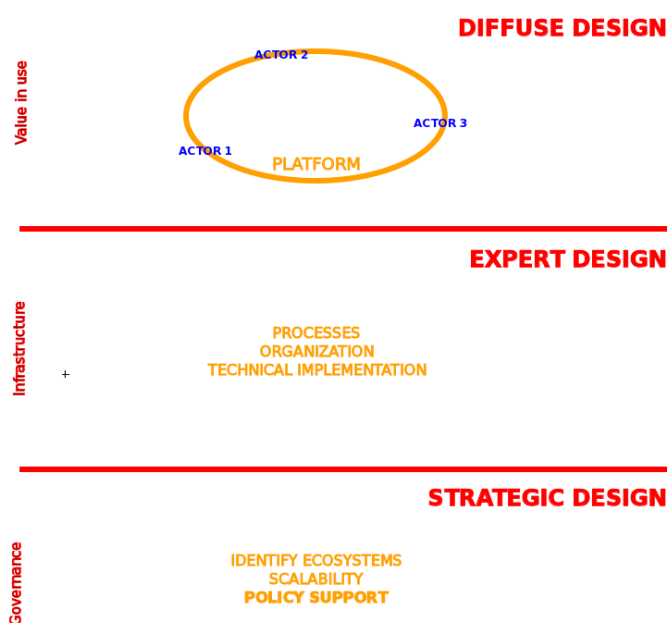


Figure 2 Levels of design action

Value co-creation/diffuse design/Value in use

As mentioned above, service providers can only offer value proposition, they cannot create value independently. How can enterprises and service designers shape the value propositions that will support the value creation in use? Hillgren, Seravalli et al. (2011) stress the idea that prototypes could be used to support participation, highlighting opportunities and dilemmas. They suggest prototyping as a part of a continuous process of building relations with diverse actors, within an open-ended design structure. Prototyping, seen as an open ended design tool to test and explore ideas and to support participation has also been a critical part of design strategies in several projects in UK (NESTA 2011, Thinkpublic 2013). This tool is not new to design and engineering and is also widely used in software and websites engineering. When applied in service design this tool is believed to generate more upfront activities than traditional service development processes.

Circle

Circle was an open-ended project developed by the UK consultancy Participle, together with 250 older people and their families in Southwark, South London, in 2007. The aim of the project was to improve social connection of elderly people, in order to make them more independent. The core services offered by Circle were: a rich, ever changing social calendar and on demand practical support, provided both by members themselves and paid helpers. The project has been developed through *experience prototypes*, in which the design team made ‘neighbourhoods helpers’ available on demand for the elderly community¹. (Winhall 2011). This activity created connections and encouraged participants to share interests and skills. The use of the prototype helped sharing the service according to the participants’ need for help or social interaction. By staging the potential experience of using or participating in the service, the team and the community of participants could work out what and whom the service is for, facilitate effective system change, understand and integrate the perspective of different participants, The prototype also supported the definition of a business model that allowed the service to be successfully replicated.

Prototyping is a sort of *colloquial* or *narrative* tools that provoke – *provotypes* as defined by Sabroe and Schulze (2016) – highlight opportunities, facilitate discussions and/or emphasise challenges and conflicts with existing cultures or attitudes. Prototypes can also consist of simple and well known design tools, such as storyboards, flowcharts or service journeys, that can be use to support the dialogue or test ideas with relevant actors. (Parker and Heapy 2006, MindLab 2015).

Infrastructure

The narrative, colloquial or provoking tools described in the previous session, are part of an activity of mediation, interpretation and articulation, that represent what Björgvinsson, Ehn et al. (2010) define as infrastructuring. But infrastructuring is also including “a priori” infrastructure activities (selection, design, development and deployment) that generate the ground on which value creation rests. Such ground may consist of digital platforms, physical

¹ The quality of the interaction in the prototype is clearly illustrated in a video available at <https://vimeo.com/142485730> (accessed 2.10.2015).

spaces, public innovation spaces, information and logistic services (Manzini 2015) that support an on-going alignment between contexts, cultures, attitudes and routines.

While the activity in the value-creation phase aims at facilitating or supporting interaction, the activity of expert designers, that create the ground for the interaction is often based on a more “traditional” planning activity, that include the analysis of the context, the definition of blueprints, the coordination of time sequences.

The Service Dominant logic does not necessarily changes the toolbox of expert designers, but requires necessary adaptation to the existing tools. If blueprints or service architecture were created for the service provider to control the value creation process, the new logic imposes that this control is now placed in the interaction between the service’s relevant stakeholders and the tools should consequently be adapted to this shift.

Bike in Copenhagen, a student project:

The service developed in this project, called Bike, is a peer-to-peer bike sharing service aiming to empower local Copenhageners to share their bikes as well as their knowledge with visitors, in order to give visitors an engaging and authentic experience of the local culture, and to monetise and create value with otherwise under-utilised resources. The designers developed a platform to allow the users to get in contact and actually mutually provide the service itself. The service provider, as in better known examples (AirB&B), can be seen in this case as an interaction facilitator, not in full control of the outcome of the service. We could argue that the expert design approach is here the one that concern the technical development of the IT interface/platform which envision the possible interactions among users and with the service. However, the outcome of the interaction depends on a diffuse participation, the value is created through user interaction and, on a wider perspective, it is an emergence of the whole service ecosystem. In the blueprint of Figure 3 the interaction level is emphasized by the unusual disposition of the back and front office that are doubled. This representation is more efficient than the most used back/front office blueprint representation and it emphasises how the control of the interaction shifts from one user to the other, with the support of the service infrastructure.

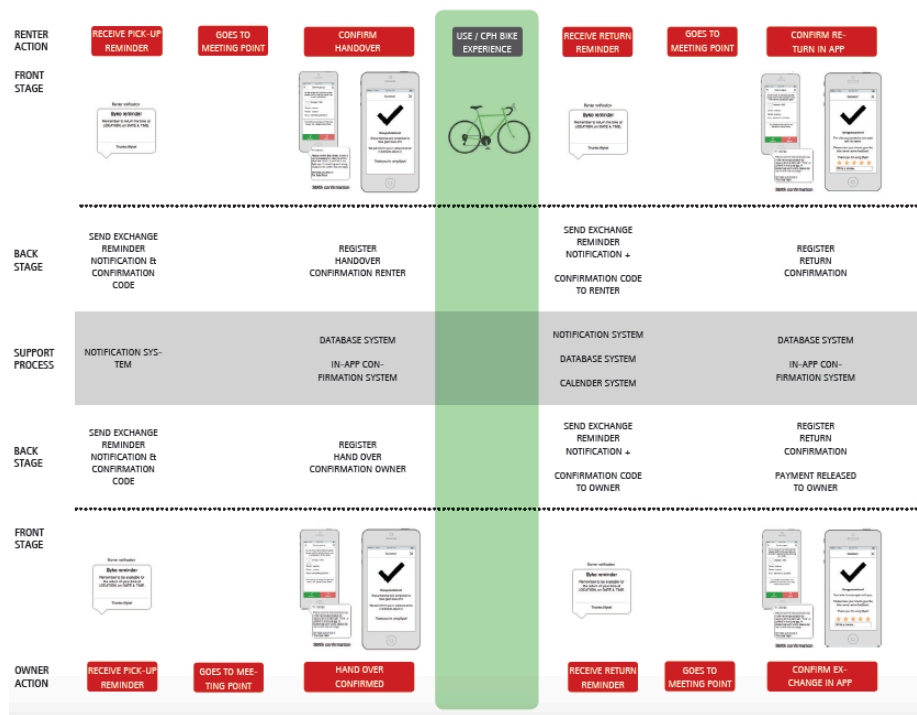


Figure 3: Blueprint of the Bike sharing service (courtesy of Andreas Jonsson, Bánk Horváth, Christian Brandstrup Jensen, Jonas Wenke, Marianne Have Petersen)

The level of governance

One of the most common challenges in designing services has been to extend and scale up innovative solutions from an isolated development context, such as a user group, a specific service location, to a larger context. While expert design contribution to the quality of interaction in a service may reveal new opportunities for innovation, this may not be sufficient to replicate innovative solutions to different geographical or social contexts, or simply to expand the existing users' base. This is particularly relevant when the focus of design action is strongly based on participation, with the aim of generating scalable solutions and wider social transformation. (Shulman 2010).

At this level designers should move beyond the isolated cases and contribute to the definition of future roles and resource flows in public systems in order to build capacities (Hillgren, Seravalli et al. 2011) and to identify structures and competences that would support a service ecosystem (Morelli 2015).

Building platforms for social interaction: Life 2.0 and My Neighbourhood

Social networking is increasing the communities' capability to produce new solutions. Thanks to spontaneously organised social initiatives new solutions are emerging that address urgent and crucial problems using new logics and a new approach.

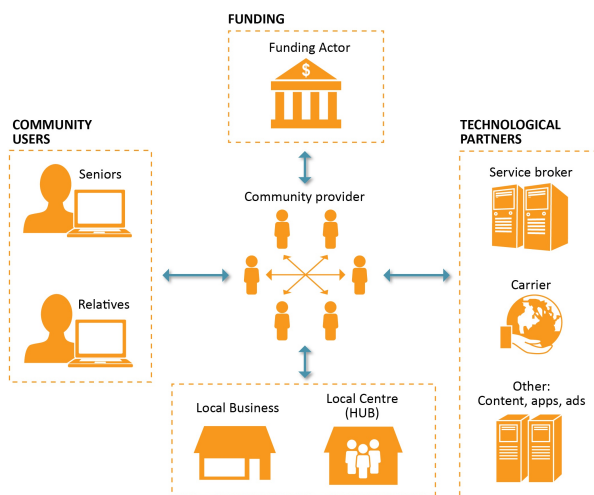
Public authorities are seizing this opportunity to explore the possibilities to find unprecedented solutions to emerging problems in some crucial areas, such as healthcare, social integration of minorities and immigrants or elderly care. Two projects have been recently presented: Life 2.0 and My Neighbourhood. (Morelli 2015). They explore such opportunities from the a strategic design perspective. Both the project aimed at building online community based on existing physical

communities: Life 2.0 worked on elderly communities in four pilot locations and My Neighbourhood focused on community building in four geographical areas².

These were two EU-funded research projects with a structured approach based on ethnographical analysis, which aimed at involving users in the design of an online platform. The early stages of the projects were developed as many other project-based design processes, in which ethnographical research and direct involvement of citizens generated requirements for the design of the platform to support social interaction. A large part of the projects, though, was developed around fully functional prototypes that citizens (elderly people in Life 2.0 and members of local communities in My Neighbourhood) tested and actively contributed to develop. According to the suggestion of Hillgren, Seravalli et al. (2011) the major development of the project consisted on *slow prototyping*, that consists in the development of an idea through extensive user testing. The authors believe that slow prototyping can also accommodate gradual scaling-up, that could adapt the final version to the specificity of local areas or communities.

It is worth stressing that this *slow prototyping* process along with the capability to map the actors in the ecosystem and into their mutual interaction, makes it possible to identify actors' rules and competences and to develop the capacities that can consolidate an ecosystem, thus achieving the goals of reproducibility and scalability. In particular these projects:

- identified specific capacities, such as aggregative capacities for community providers,
- identified the contribution of different participants to the value creation process in the ecosystem; and
- defined the conditions that linked the development and scalability of the ecosystems to the local contexts (Figure 4 and Table 1).



² Both the projects have been developed in the perspective of scalability, although at the end of the funding period only My Neighbourhood reached an early scale-up phase, from the original four pilot locations to circa 28 new neighbourhoods.

Figure 4 the Life 2.0 Ecosystem. (Morelli 2015)

Actor	Type of Knowledge	Value added
User	Persona/tacit	Attention/Relevant content
Community Provider	Social/Aggregative	Aggregation
Associations	Content related	Events/Relevant content
Technical Broker	Technical	Technical solutions
Local Businesses	Service/Market related	Personal/Locally relevant/Market offers/financial support
Funder	Connective	Financial Support

Table 1 Life 2.0 actors, knowledge and value added

In this sense designers should cover the strategic role to visualise and clarify the elements of the innovation ecosystem for services. Such elements make it possible to address questions such as relevance of the system for participants, mutual trust and financial support, that are the essential for the financial and social sustainability of innovative solutions.

Conclusive remarks

The polarity between the more common project-based approach to services and the open ended approach suggested by the Service-Dominant Logic is useful to emphasise a new perspective, but in fact it considers the project-based approach as a well defined and rigid methodological approach. Actually, the proliferation of methodological contributions on websites ("Service design tools" , "Service Design Toolkit") and texts (Stickdorn and Schneider 2011, Curedale 2013, Kimbell 2013, Polaine and Løvlie 2013) reveal that service design is still consolidating its methodological approach and is still open to changes and adaptation to methods according to a very fluid contextual condition. Furthermore the widely accepted focus of service design activities on users has oriented the methodological approach towards the development of colloquial, narrative and interactive tools, often adapted from other disciplines, that support the value-creation in use.

The perspective shift re-shapes the role of expert designers and service providers in contemporary innovation processes, especially in cases of diffused innovation processes based on a participatory approach. This however does not represent a real discontinuity in the use of methods and tools that were previously used: some existing methods, such as prototyping or narrative techniques become more relevant, because they support interaction, highlight dilemmas and support value co-creation in use. Other methods, such as service blueprinting or journeys, that were possibly used with a more prescriptive aim are still adequate to support the phases of creation of the infrastructure for the interaction.

From the methodological point of view the Service-Dominant Logic is an opportunity to re-define the way designers' toolbox is used, rather than reshaping or changing it for a new toolbox.

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Preparing the organisation for change by using service concepts

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Abstract

The strategic intent of offering superior customer journeys with minimal frictions and with maximum customer delight has recently received top managers' attentions. But while literature across disciplines has emphasised the meaning of cross-functional collaboration for customer value added, surprisingly little has been empirically and theoretically documented on the alignment of superior customer journeys with cross-functional business processes. With basis in theoretical lenses developed from service-dominated logic of marketing (SDL), the paper concludes that *service concepts* are powerful for preparing an organization for change towards a more service business logic focusing on service offering through superior customer journeys. The approach is exemplified with a detail empirically-based description of one service concept designed in a Scandinavian telecom company.

KEYWORDS: Service concept, customer journey experience, cross-functional business processes, service design thinking

Introduction

Leading service providers often fail to deliver superior customer experience due to inadequate attention to the *customer journeys* (Rawson, Duncan & Jones, 2013; Wright, 2012), defined as the “customer's interactions with one or more service providers to achieve a specific goal” (Halvorsrud, Kvale & Følstad, 2016). Stone & Devine (2013) show that over 70 % of very satisfied customers build their favorable impression when their needs are met over three or more touchpoints. Indeed, this usage pattern is evolving in the digital usage space. As a consequence, service providers that aim to design for superior customer journeys must shift their focus from simply optimizing individual touchpoints in isolation towards designing for customer journeys spanning across multiple touchpoints (Rawson, Duncan & Jones, 2013; Løvlie, Downs & Reason, 2009; Martin, 2009; Lockwood, 2009) and further engage corporate functions responsible for the touchpoints. This shift implicates an understanding of service design from a tactical to a more strategic and transformational role (Sangiorgi, 2012) focusing on business processes (Brown, 2009; Gloppen, 2012) and

competence and skills developed in cross-functional collaboration (Clatworthy, 2013). In the context of this paper, we thus consider service design as a strategic means for change and of which business actors involved in the customer journey ecosystem are the main contributors in the co-design.

Several contributions have argued how organizations may gain advantages by creating a strong fit and alignment between crucial organizational aspects (such as corporate strategy, culture, processes and structure), and different stakeholders' (including customers') perceptions (Hatch & Schultz, 2001; Chatman & Cha, 2003; Tushman & O'Reilly, 1996; O'Reilly & Tushman, 2004; Hillestad et. al, 2010). These contributions have however paid less attention to assessing how organisational aspects are essential for the service offering. The service-dominated logic (SDL) of marketing (Vargo & Lusch, 2004, 2006; Lusch & Vargo, 2014; Vargo & Lusch, 2015) offers insights into this complex problem area. The core of SDL is that service is the foundational basis of exchange, and define *service* as "the application of specialised competences (knowledge and skills), through deeds, processes, and performances for the benefit of another entity or the entity itself" (Vargo & Lusch, 2004). Resting on the foundational premises of SDL in cross-functional business processes implementation, (Lambert & Garcia-Dastugue, 2006) emphasise cross-functional perspectives for the benefit of customer value: "To develop a competitive advantage, an organisation must gain in-depth knowledge about the customer from a cross-functional perspective because the necessary service provision might require skills from any corporate function" (Lambert & Garcia-Dastugue, 2006). In the context of service offerings through superior customer journeys, the applications of cross-functional business processes, collaborative competences and performances thus become an essential competitive advantage.

In this paper, we focus on how *service concepts* are strategic means for preparing an organisation for change towards a more service business logic by applying foundational premises of SDL. Patricio et al. (2011) suggest multilevel service design to address the complexity of service systems, and define service concept as "the firm's positioning in the customer value constellation (CVC) including the services offered and the links and partnerships established with other organisations in the network to enhance the firm's value proposition". A similar interpretation is found in Edvardsson & Olsson (1996) who refer to a service concept as a "detailed description of *what* is to be done for the customer (what needs and wishes are to be satisfied) and *how* this is to be achieved". A service concept is a *prototype* (ibid), and ensures the integration between the *what* and the *how* (Goldstein et al., 2002). Given the problem area of this paper, the *what* is the service offering throughout a superior customer journey and the *how* concerns the cross-functional business processes, knowledge and performances required for delivering the superior customer journey. By using theoretical lenses developed from SDL, we will illustrate this argument through a case study from a major telecom operator in Scandinavia. We will do this by presenting executives' perceived challenges related to the strategic intent of delivering superior customer journeys, and show the challenges related to the *how*-dimension. The executives' perceptions constituted the foundation for designing several service concepts following the same approach. In this paper, we exemplify by one particular service concept – the *QuickBasket* concept.

Theoretical lenses of analysis

To use SDL as a framework for service concept design, it becomes essential to pay attention to knowledge and competence developed in cross-functional collaboration processes. The foundational premises of SDL (Vargo & Lusch, 2006; Lusch & Vargo, 2014; Vargo & Lusch, 2015) constitute the basis for three theoretical and inter-related lenses developed for the purpose of service concept design. In what follows, the lenses are presented.

Lens # 1 Customer focused business processes

This lens is based on SDL's foundational premise which specifies that indirect exchanges mask the fundamental basis of exchange. In a customer journey perspective, the fundamental basis of exchange requires skills, knowledge and resources that are housed both *within* and *across* multiple corporate functions that are fundamentally *customer focused* (Lambert & Garcia-Dastugue, 2006).

Lens # 2 Cross-functional collaboration -and knowledge

This lens is based on SDL's foundational premise which emphasises the application of specialised competences for the benefit of another entity or the entity itself. In a customer journey perspective, the service provision requires skills and competence from the involved corporate functions to the benefit of cross-functional business processes and collaborative competence. This ensures ownership of the value proposition across multiple functional areas, and “enable the firm to make value propositions to the customer and gain competitive advantage” (Lambert & Garcia-Dastugue, 2006). Thus, a competitive advantage is cross-functionally developed competence and ownership of the customer journey.

Lens #3 Value co-creation

This lens is based on the SDL's foundational premise which emphasises that value is always co-created by multiple actors, always including the beneficiary. The main assumption is that actors of the service ecosystem are able to apply their special competencies and skills for the benefit of another. In a customer journey perspective, both the customer and the corporate functions are the beneficiaries and co-producers of the customer journey ecosystem.

These theoretical lenses constituted the basis for the service concept designs, and further for preparing an organisation for change towards a more SDL. This will be further presented in the following section.

Methodological approach

The aim was to create a service concept that explore the connections between the *what-dimension* (a superior customer journey) and the *how-dimension* (organisational processes and procedures), for the purpose of preparing the organisation for changes. With basis in the theoretical lenses, the following approaches were used:

A pre-analysis of the status quo

From Lens #1, it is important to explore the executives' capability to focus on the customer in business processes (in e.g. decisions- and strategy processes). Thus, the aim of the pre-analysis was to explore the executives' perceived challenges on the company's ability of offering superior customer journeys. In-depth interviews of 10 *executive managers* (E) responsible for different corporate functions were conducted. The respondents were not the same employees as took part in the later co-design of the service concept. Each interview

was conducted by two researchers following the same composed interview guide. The interviews were recorded and later transcribed for further analysis.

Co-design of customer journey

From Lens #2, knowledge and ownership achieved through cross-functional collaboration is a fundamental competitive advantage. In order to develop cross-functional knowledge and ownership, assembling cross-functional working teams, and at least one *middle manager* (M) from each corporate function, was required. This particular approach has been successfully used in different activities of designing service concepts in the company. In the following, we will present *one of these design activities*.

The particular design activity was related to *the company's dilemma* of delivering superior customer journey experience, and at the same time reducing the costs in manual touchpoints (e.g. call centre) and increasing sales across touchpoints. Digitalization of touchpoints (e.g. digital self-services) was one strategic action to this dilemma. However, existing operational practices report that digitalization of touchpoints may have an opposite effect. A huge number of the customers that was calling call centre have *not been able to place an order in the web-shop* mainly caused by inconsistencies in the different touch-point offerings or bad service experience (Følstad et al., 2014; Dixon, Freeman & Toman, 2010). Furthermore, the company has experienced that a large number of sales conversations with customers end up with the customer *not making an immediate decision*.

The design activity was thus aimed at exploring this complex dilemma, and to co-design service concepts that visualise solutions to the dilemma. The participants in the design activity were middle managers responsible for different corporate functions such as customer care, customer experience, sales, brands and marketing communication as illustrated in Figure 1. Within each function, operative managers also participated: For example, in the Sales functions, operative managers with responsibility of sales in web-shop, in operator store and in customer care participated.

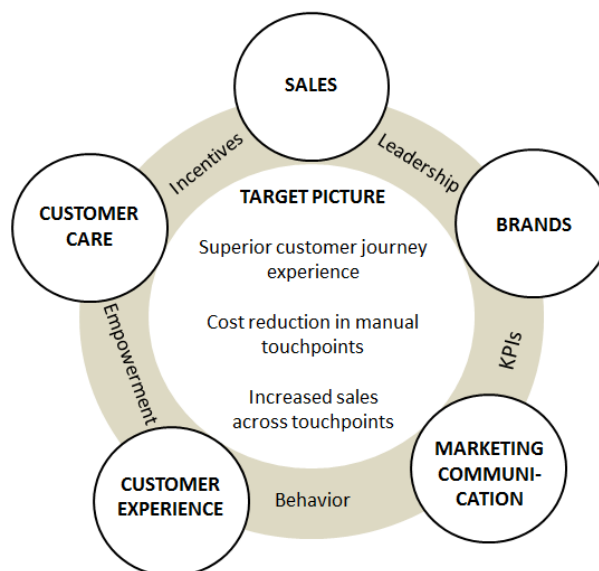


Figure 1: The complex triadic dilemma: Superior customer journey experience, increased sales and service in each touchpoint and cost reduction.

The triadic dilemma (Figure 1) challenges existing organizational aspects that are often connected to customer touchpoints (and herein corporate functions and channels), e.g.

empowerment of employees in specific channels and touchpoints, Key Performance Indicators (KPIs) and other incentives and performances, leadership and employee behavior.

The cross-functional teams collaborated in two full-days workshops. Service design thinking was used as methodology for helping the managers *to think out of the box* and to challenge existing operational practices and responsibility areas. The teams mainly used simple drawings for visual communication of ideas. The team work was facilitated by professional service designers.

The data material consisted of observation notes, video recordings of selected parts of the team discussions, and the participants' own written reflections articulated in open spaces of the workshop questionnaire (one questionnaire for each of the two workshops).

Consumer feedback

Lens #3 directs the importance of integrating the skills and competencies of the beneficiaries (including the customer) of the customer journey in the value co-creation. In this study, we used achieved feedback from consumers on the designed service concepts.

In order to get feedback on the service concept in the very early design stage, potential customers were invited to comment on the service concept prototype through an online social platform. The RECORD online Living Lab was applied for this purpose. Following the approach described by Følstad et al. (2015) the *what*-dimension of the service concept was presented by simple illustrations showing its intended key features. The consumers were asked about what they liked in the concept, what they saw as potential problems or difficulties, and whether they had suggestions for changes or improvements. In order to facilitate the discussion about the service concept, both a moderator and the participants could comment on the feedback of the other participants, something that has been shown to have a beneficial effect on the usefulness of the consumer feedback (Følstad, Hornbæk & Ulleberg, 2013).

Results

In the following section we present the results of the analysis by using the theoretical lenses outlined from SDL.

The executives' perceptions of existing business processes

The executives interviewed highlighted different *organisational obstacles* for the company's ability of offering superior customer journeys. The most critical obstacle was the organisational structure, and this was specified by one of the executives in the following way: "(...) *the organizational silos are clear obstacles to deliver cross-channel experience and to optimize the delivery across channels*" (E2). The silo-structure implicated that *"the cross-channel culture is non-existing, making it hard to deliver sustainable and profitable customer experience"* (E1) and that the company *"fail to recognize the customers across channels (...)"* (E8). Knowledge and incentives are housed within corporate functions, making it hard to harness resources and competence in a way that the customer truly values and is willing to pay for. The company was more likely to structure customer-oriented strategies within channels and corporate functions rather than across them. One of the executives considered this as critical with respect to the company's competitive asset in marketplace: *"We are an organization with very many intelligent and skilled*

people (...) but because of the structure, we do a lot of stupid things. We are collectively marching out of the cliff” (E7).

On the time the in-depth interviews were conducted, executives leading a corporate function often lost their focus on customers and turn their attention to the achievements of functional objectives e.g. minimizing costs or achievement of functional metrics and incentives. Thus, target conflicts between different corporate functions (and their ownership of touchpoints) were considered a hindrance to high quality customer experience. An executive exemplified this target conflicts by using the following illustration:

“(...) Sales personnel in the web store are only measured on sales. They have no incentives to route the customer to the physical store. Therefore they don’t courage people to go to the store.” (E8). E8 underlined that the customers become frustrated when they cannot continue and complete an interaction they have started in one touchpoint (e.g. online) when they move to another touchpoint (e.g. the operator store): *“It is frustrating that I can’t be awarded for helping a customer to complete a purchase in another channel” (E8).*

The pre-analysis shows that the organisational obstacles were anchored in the lack of cross-functional processes and knowledge. According to SDL, this is critical regarding both the company’s competitiveness in the marketplace and the customer value throughout the whole journey. According to the executives there was a high consensus on the need for change, but low on what it actually implies across the organization. A common target picture for change towards a superior customer journey offering is needed for going forward on the strategic intent. To realize the need for change and to accomplish the change required, presuppose, in this case, that managers of corporate functions, are ready for change and that capacity for change exists. As Weiner (2009) states: “... readiness for change refers to organization members shared resolve to implement change (change commitment) and shared belief in their collective capability to do so (change efficacy)” (ibid.). Commitment and willingness to change as well as the organizations enablement and capability for this change, are prerequisites for achieving a common target picture. Resting on the foundational premises of SDL, such a target picture must include cross functional collaboration, and exchange of knowledge and skills for the benefit of superior customer journey offerings.

Co-designing the service concept

In what follows, we show how the design process stimulated to cross-functional and collaborative development of shared knowledge and ownership.

The collaboratively developed visualizations were perceived as powerful artifacts for exploring the *what*- and the *how* dimensions of a service concept. As one of the middle managers reflected: *“Many of the ideas are not necessarily breaking news (...). There are things you already have thought of yourself, but you get the confirmation that they were good.” (M1).* The visual artefacts became a cognitive tool in the individual’s articulation of one’s own tacit thoughts and to create new insight: *“I was very pleasantly surprised when the ideas actually took shape as we discussed, and it really helped me to think differently and achieve completely new understanding” (M4).* The visual artifacts contributed to an increased understanding of the individual manager’s responsibility in the customer journey. Furthermore, translations of individual thoughts were conducted by service designers in terms of lingering visualization that in turn became a common artifact for establishing a shared understanding within the cross-functional teams.

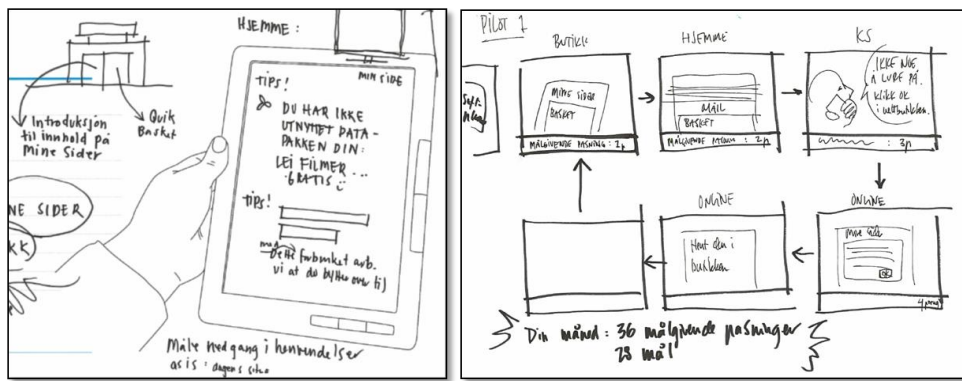


Figure 2: Visualizations of cross-functionally construction of knowledge: The first sketches of the different touchpoints and underlined organizational incentives (Right), and the first sketches of the service allowing the customer to use more time on the decision (Left)

One of the managers expressed this in the following way: “It made it easier to understand and to increase the value of each other’s ideas” (M4). Another stated that “(...) you get multiple views and opinions you are not aware of at all.” (M5). In addition, the visualization was considered effective, because it “allowed us to quickly move to very interesting parts of the discussion. It would have taken hours to get to the same result without it” (M6).

The finale outcome of the process, The QuickBasket service concept (presented in the next section), also demonstrates the value of visualization for increasing the cross-functional understanding. It became a powerful artifact for managerial decisions that are driven by customer journey experience rather than by achievements of separate functions. This was clearly stated by the middle managers after concluding the design process: “It is certainly much easier to get the message to the management. One thing is to create a common understanding as a part of the workshop. Something else is getting the message out in the organization and among decision makers”. (M1).

The design processes showed that the visualizations helped the cross-functional teams to construct shared understanding and knowledge, as well as to ensure ownership of the value proposition across multiple functional areas.

The service concept QuickBasket

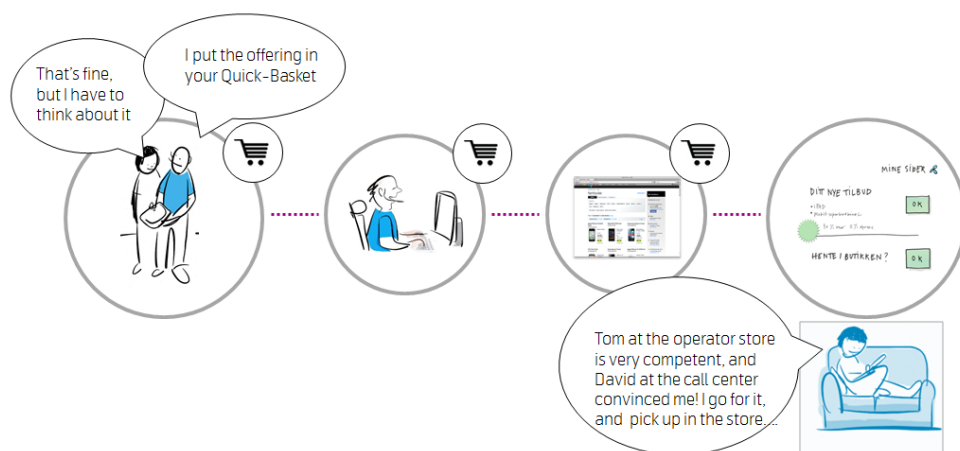


Figure 3: The target picture (the what-dimension) designed by the cross-functional team

Figure 3 shows the customer journey designed by the cross-functional teams. To illustrate, when a customer has a question regarding the service to purchase, the sales agent bases the conversation on a digitally generated overview of current customer behaviour and gives recommendations based on the customer's profile. To allow the customer to make a decision later, the agent put the offering in a personalized and digital QuickBasket that is available for forthcoming customer interactions in any channel (sales and service) and touchpoints (). As such, the customer does not need to start the conversation afresh for each time interacting with the BU in her purchase process, and it helps the agents to interact with the customer both professionally and personally. For example, if a customer calls the call centre, the agent there has access to the same information as all the other channels and can continue closing the sale. From her sofa at home, the customer can review the offer, order it and choose where she wants to pick it up.

The service concept intends to address a superior customer journey across touchpoints and has a potential to add the company value offering by allowing the customer to feel a flow of experience across touchpoints. This signifies important elements of the *how*-dimension of the service concept: An important issue discussed in the team work was that sales and service have to be considered regardless of touch points and corporate functions. The idea that the different touchpoints and agents can see the process and *share rewards* on start, assist and closing of a sale was an important mechanism for a successful purchasing process. Thus, a superior customer journey (the *what*-dimension) requires fundamental changes in the *how*-dimension: New and more cross-functional types of KPIs- and incentives systems, touchpoint agents' empowerment of making decision on behalf of the customer and her journey, change of agent behavior from sales-orientation to service-orientation, and new leadership principles based on end-to-end ownership and responsibility.

Customer feedback

We gathered feedback on the *what*-dimension of the service concept from around hundred consumers through an online social platform. As recommended by Følstad & Knutsen (2010), the free-text comments were manually analyzed and coded into three categories (positive, negative/problem, and constructive/suggestions) as well as themes within each category. Hence, a comment may be coded as containing none, one or many feedback types. The feedbacks from the consumers were mostly positive, stating that *"This is good, and something I have hoped for since I bought a new phone, accessories, and new subscription"* (C26), or *"This service will probably work well and appeal too many. You get the opportunity to gather information in the store, and eventually go home to think about the offering"* (C50).

Some consumers, however, were only conditional positive. Their concern was mostly related to that such solutions may be abused to aggressive marketing, as expressed by (C31): *"Seems like a neat and good solution as long as you can delete the offering and not be contacted because of I have asked for an offering...."*

Even more interesting were the concrete suggestions for refinements and improvements of the concept as well as hints for avoiding possible future problems when launching such a concept in the market. Such hints were for instance to make it easy to delete the content of QuickBasket and to design the QuickBasket as a wish list in the web shop. A few consumers required that only customers themselves should be able to take contact based on the content of QuickBasket, as stated by one consumer: *"Consumers are often contacted by companies with various offerings. I simply become irritated of this and am not able to listen to all of this. Therefore, it is important for me to decide when to take contact based on my own needs"* (C4).

Conclusion and further work

In this paper, we have used theoretical lenses outlined from service-dominated logic (SDL) of marketing (Vargo & Lusch, 2004, 2006, 2015 Lusch & Vargo, 2014) in the design of service concepts that prepare an organisation for change towards a more SDL.

Outlined from the SDL, the paper addresses the following lenses that are important for approaching an alignment between superior customer journeys (the *what*-dimension) and organisational aspects (the *how*-dimension) in the service offering:

- *Lens #1 Customer focused business processes* which emphasise implementation of cross functional business processes that are customer-focused.
- *Lens # 2 Cross-functional collaboration -and knowledge* which focuses application and development of specialised competences for the benefit of cross-functional teams and customer focused business processes
- *Lens #3 Value co-creation* which focuses on the co-creation between multiple actors, always including the beneficiary (customers and cross-functional teams)

Using these theoretical lenses, the study shows that the processes of designing a service concept increased the middle managers' awareness of own responsibilities in the end-to-end customer journeys. This new insight changed the middle managers' attitudes towards considering the service as holistic customer journeys, instead of seeing their own responsibility as a stand-alone offering. By using service design thinking in the cross-functional work, it became clear that the visualizations and the service concept were important artefacts for articulating individual thoughts and for creating meaning (Schön, 1983; Krippendorff, 2006) and enhanced the middle managers to use service design thinking as "cognitive style" or "boundary object" (Kimbell, 2011). Furthermore, the visualisations (including the service concept) became important means for cross-functional coordination of skills and construction of cross-functional knowledge that are essential for the service provision. Thus, the cross-functional processes had implications for managerial practices of connecting business processes that cut across organisational silos.

The final outcome of the cross-functional processes, the QuickBasket service concept, became a tangible artefact for demonstrating important aspects of the *what*- and *how*-dimensions in meeting the customer's changing digital behaviour: The service concept demonstrated what the target picture of the customer journey experience (the *what*-dimension) should be like, as well as the demanded changes in the organizational processes and capabilities (the *how*-dimension). The QuickBasket service concept became a visual and powerful artefact for strategic conversation on the middle management level, but also for making it easier to suggest changes that will create future customer value and customer-focused business processes. The ideas of the service concept have been integrated in several strategy processes, and some of the ideas designed have been implemented in different offerings and touchpoints. Thus, the service concept has served the intention of being a

target picture that implicates step-wise changes towards the strategic intentions of increased service business logic of the company.

Based on the findings, further research is dedicated to further develop the theoretical lenses to be used within a broader service design thinking approach for herein being able to explore the value of service design thinking in a company's transformation to a more service business logic.

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Low Threshold Service Design: Desktop Walkthrough

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Abstract

This paper introduces the first academic characterisation of the *desktop walkthrough* technique. Desktop walkthrough is considered here as a service design technique using a collaboratively built miniature environment to construct knowledge about a specific service. It is further examined as a technique for rapidly exploring and designing a service concept. The analytical lens of the paper is outlined from socio-cultural theories on human development where any human action is developed from, and emulated by, social interactions and the intellectual and physical artefacts herein. The analysis shows that desktop walkthrough enabled teams to design a holistic service journey with low threshold usage, and provided a means for exploring and designing the complexity of customer journeys and the backstage organizational processes.

KEYWORDS: desktop walkthrough, design games, case study, activity theory

Introduction

A core of service design is to pay attention to whole services (Blomkvist, 2014; Parker & Heapy, 2006). However, leading service providers often fail to deliver superior customer experience due to inadequate attention to the customer journeys (Rawson, Duncan & Jones, 2013; Wright, 2012) and the company's aligned organizational processes. To approach this complexity of a service, service designers often make service blueprints (Bitner, Ostrom, & Morgan, 2008; Shostack, 1982) in the analysis and (re-)design of a service. The service blueprint has provided service design with some central concepts based on a theatre metaphor of service: the onstage, backstage and supporting process. Mapping out the different stages in a blueprint, helps the service designers to develop a coherent proposition and link different elements of a service together (Polaine, Løvlie & Reason, 2013).

With today's growing business interest in service design and design thinking (Harvard Business Review, 2015), there is an increasing demand for simple tools that rapidly and easily help decision makers and non-designers to (re-)design the link between onstage and backstage processes. In this paper we therefore suggest desktop walkthrough as a technique particularly useful for this context of use.

Despite high familiarity with desktop walkthrough within the service design community, there is still few empirically-based studies that are based on solid theoretical foundations for analysis. In this paper, desktop walkthrough is considered as a *collaboratively* constructed miniature of a service, and of which a set of artefacts (e.g. LEGO®) is used in the construction. Framing desktop walkthroughs as a collective activity means that the output of the activity is seen as a collectively constructed and shared artefact – the service representation - rather than as a result of individual contributions. Meaning, understanding, knowledge, ideas etc. emerge as the result of interactive, collaborative processes that are tied to the situation, to the participants' expertise and experience, and other physical artefacts available.

To approach a deeper understanding of desktop walkthrough, we suggest socio-cultural perspectives and activity theory as a useful analytical lens. We use a socio-cultural lens here to understand and describe the work of two business teams using desktop walkthrough in their process of designing for new customer journeys to be applied in future operational practices. As such, the paper covers a gap in the service design literature, and the same time is a contribution to a broader discussion on appropriate analytical lenses for the purpose of empirical analysis of service design processes.

Desktop walkthrough

Desktop walkthrough is a well-known technique within the growing discipline of service design. Desktop walkthrough has been described by service design practitioners as “very simple exercises in imagining a service experience using small, hand sized toys. A typical desktop walkthrough involves a customer, a member of staff, an environment and some paper touch points.” (Engine, n.d.). These desktop artefacts can be considered representations of servicescapes (Bitner, 1992). LEGO pieces or other small “figurines” (Segelström, 2013) are often used to represent people and other elements of the service, allowing exploration of interactions people have as they move around the servicescape. This provides the participants with a visual model where events can unfold and service processes can be simulated. This model can be seen as a representation of the service that is being designed (Blomkvist, 2014). The service representation is not metaphoric, it takes the place of the imagined future service as an artefact developed in processes where participants elaborate, play with and test it. It is an abstract version that is open for interpretation and collectively constructed meanings (Buur & Matthews, 2008; Gaver, Beaver, & Benford, 2003). However, what the different stages of a walkthrough contains and looks like are not decided beforehand and need to be developed in the situation of the activity.

Desktop walkthrough is part of a group of techniques that has been labelled *ongoing* (Blomkvist & Segelström, 2014). Ongoing techniques dynamically and interactively change over time and only exist during an activity, and examples include roleplaying and service enactments. These techniques have a specific set of cognitive benefits during design: they are shareable objects of thought, facilitate re-representation, support inferential reasoning, and act as more natural representations of structure (compared to mental representations). Another group of techniques in design uses *definite* representations that, unlike ongoing techniques, serve as persistent point of reference. Definite techniques such as customer journey maps, service blueprints, and storyboards complement the ongoing techniques by being shareable objects.

Desktop walkthrough exists within a larger context of design techniques that utilize artefacts to coordinate design activities (for early examples, see Ehn & Kyng (1992) and Sanders (2000)). However, desktop walkthrough is best understood as a specific type of design game. While there is no clear definition of design games (Eriksen, Brandt, Mattelmäki, & Vaajakallio, 2014), they are often described as ways to stage interaction and exploration within a frame of rules and tangible game pieces (Brandt, 2006). Design games have been

proposed as an alternative to other business model innovation approaches that are based on rational processes and causal reasoning (Gudiksen, 2015). Games in more general terms have been described as consisting of actors, rules, and resources (Klabbers, 2003). Unlike many other (design) games, desktop walkthroughs do not have a set of rules about how or what to (not) do during a game. However, this does not mean that desktop walkthrough cannot be described as a game. In terms of rules, there are two categories of games: allotelic games, where players are restricted by rules and defined goals, and autotelic games, where players are free to act according to their own motivations and goals (Klabbers, 2003). Hence, desktop walkthroughs can be understood as autotelic design games, where a team collaboratively constructs the setting and events.

Unlike many other design tools, desktop walkthrough (as a collectively constructed and shared artefact) is not a boundary object (Star & Griesemer, 1989), since it is not intended to be used across sites as an object that moves between communities of practice. It can gather people from diverse backgrounds and provide a basis for collective, materially mediated and highly situated activities.

When LEGO is used, desktop walkthrough does not require any specific knowledge or skills to get started. Walkthroughs can be set up and introduced quickly, and participants have somewhat equal possibilities to contribute. While the technique does require a starting condition of some type (a scenario, a problem, a question etc.) it has no end condition. The outcome is an abstract, miniature version of a service and the knowledge generated during the activity. The time allotted for the task influences the end state. Desktop walkthrough does not have any rules for what should be represented, nor for e.g. number of participants or length of sessions. The participants can act as specific users (e.g. customers, employees and other actors in a service) and/or things, and can experience the service from their specific level of knowledge and specific needs. Desktop walkthrough can potentially be used in many different ways. In this paper we focus on its role and function in group activities.

Theoretical lenses of analysis

Many theories are useful as analytical lenses to study and structure the collaborative activity of desktop walkthrough. Situated and distributed cognition has recently been used to analyse service design tools (Blomkvist & Segelström, 2014). An associated and somewhat complementary perspective, is given by socio-cultural theories of human development, which has been suggested as a useful perspective for service design (Kaptelinin & Uden, 2012; Sangiorgi, 2009). According to socio-cultural theories, any human development is mediated by social interaction and the intellectual and physical artefacts used and developed herein (Vygotsky, 1978; Leontiev, 1983; Wertsch, 1991; Nardi 1996; Engeström, Miettinen & Punamäki, 1999; Säljö, 2005). According to Säljö (2005), development of any artefact is based on people's particular needs, and is often based on people's creativity and innovative capacity. This means that an artefact is not a dead or static object, but is continuously (re-) developed and used within specific socio-cultural practices.

The artefacts are understood not only as physical tools (e.g. a mobile phone or a PC), but also as different types of intellectual artefacts (Vygotsky, 1978) like natural-, scientific- or business languages. Any artefact has embedded conditions that determine how a human action is performed as well as the outcome of the activity (e.g. Leontiev, 1983). The unique qualities of an artefact (such as e.g. a Lego brick) thus influence the outcome and experience of the mediated activity (Fjuk, Nurminen, & Smørdal, 1997; Berge & Fjuk, 2005).

Engeström (1987) presents an alternative model in order to analyse the social phenomenon of the activity, including rules of communication and division of labour. The model is illustrated in Figure 1.

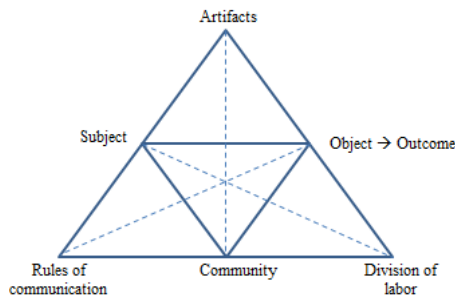


Figure 1: Engeström's model of human activity

The individual's (subject's) action towards the object of the activity is affected by three factors: The artefacts applied, the community s/he belongs to in terms of the embedded rules of the community (laws, norms, traditions, etc.) and the division of labour in the community (roles, coordination procedures, etc.). The subject's relationship to the community is mediated by rules and the community's developed and available artefacts. The community's relationship to the object of the activity is mediated by the division of labour. Used as analytical lens, it is important to consider the different parts of the activity system as interconnected (Fjuk, Nurminen & Smørdal, 1997).

The case

The case is a multi-national telecommunication company, which has service design as key capability for delivering services that add customer value in the marketplace. The unit of analysis is a business team's processes of prototyping a customer journey given a specific event in the customer's life, as well as the customer journey's alignment of backstage processes. Due to the participants' daily responsibilities (C.f. Table 1), the secondary object was to test the value of desktop walkthrough. Two teams constituted the basis for the analysis. The participants of the teams were leaders and decision makers, and with a specific responsibility of developing the capability of service design in the different subsidiaries of the company.

Table 1: Description of the participants

Team 1: international	Team 2: national
P1: Director of service innovation	P5: Service design consultant
P2: Head of service design	P6: Organization and change management director
P3: Designer of next generation service experiences	P7: In-house service design expert
P4: Service design consultant	P8: Head of service design
	P9: Customer journey expert
	P10: Director of service design

The desktop walkthrough method technique was introduced for 30 minutes before the participants were randomly divided into two smaller teams. The original scenario for the desktop walkthrough was: a customer's iPhone is broken, she goes to an operator store and wants it repaired. The teams ended up being different sizes, with four participants in Team 1 and six in Team 2. By chance, one of the teams had a mix of nationalities (i.e. representing different subsidiaries of the multi-national company) and the other had members from Scandinavian countries. Two design consultants participated (one in each team).

The teams worked on two separate tables in the same room. Both teams selected Lego-bricks from a big box, and on each table there were a couple of big, flat Lego plates to start building on. Due to the geographical diversity of Team 1, they chose to speak English, while the other team spoke Scandinavian languages. The participants had no previous experience

from desktop walkthroughs. The data material is ~4.5 hours of video showing how the teams used desktop walkthroughs. Both walkthroughs were video recorded by fixed cameras aimed at the two tables where the teams worked. Excerpts have been transcribed and translated when needed. The researchers observed and took notes while attempting to register all facets of collaboration between participants, their emotions, speech patterns, and their gestures in relation to the artefacts and each other.

Analysis

The teams' collaborative processes of creating a service representation is analysed by using Engeström's triadic model of human activity (Figure 2) to clarify the analysis framework. The subject is the individual leader or decision maker who is participating in the team of designing a good customer journey. The primary motive is to construct a new service representation that can be used in the daily business. The artefacts that mediate the individual participant's activity towards the customer journey design, includes LEGO bricks, post-its as well as business- and expert language. The vertical dotted line indicates that the participant actions towards the team also is mediated by artefacts that are available for the desktop walkthrough. Furthermore, the relationship between the individual participant and the team is mediated by different rules in the team, such as specific conditions and operational practices in the given scenario or marketplace.

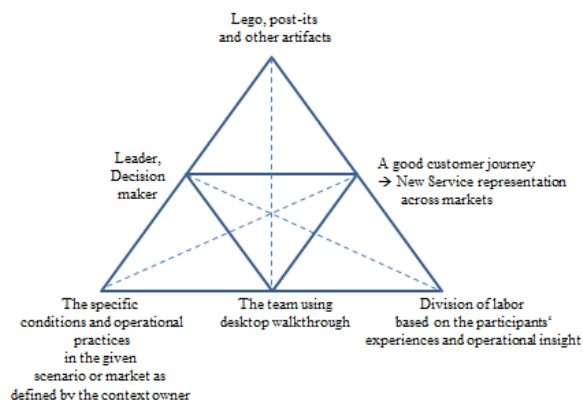


Figure 2: Engeström's model of human activity applied to desktop walkthrough

In each team, one participant was implicitly appointed context owner and was setting the initial rules. Team 1 placed the scenario in one specific market of the multi-national company and of which was the home country of P2. It was thus natural that P2 was responsible for informing the others about the context and local rules, solutions and possibilities. In Team 2, P8 had a similar position, because P8 was part of the service development team for the service that the team was working on. Moreover, the relationship between the team and the object of the activity (a good customer journey), is mediated by division of labor such as different experts areas, positions in company, etc.

Results

The results have been divided into four stages. The stages represent shared characteristics of the observed desktop walkthroughs, but no stage was the same length (between the teams) and the activities constantly shifted and overlapped, with elements from the various stages (except from stage four). So, rather than seeing the stages as something that will naturally occur in any walkthrough, they are used to structure the results and characterize the activities that took place during the walkthroughs. Within each stage we use Engeström's model as

lenses for understanding and discussing the artefact- and socially constructed service representation.

Stage One: Exploration – defining the scenario

During the exploration phase the team members defined a realistic scenario to focus on. Team 1 decided to focus on the given and original scenario, and started adding details to the scenario: a young woman was visiting an outdoor cafe in a park with good friends, she received a call, she left the café table, and while she was happily waving to her friends she dropped the phone on the asphalt. In her desperate situation of the broken front of her new iPhone, she discovered that it was possible to use the phone and managed to find an operator store nearby. The team used the customer's emotional feelings and needs in the particular event as the foundation for the walkthrough.

Team 2 decided to focus on another scenario than first given. The focus of team 2 was a service that was currently being developed in one of the subsidiaries. The service concerned the process of becoming a mobile subscriber in an operator store, and focused on what happened after a customer had decided on a specific phone. Team 2 decided to build a store, a repair centre and a home as important locations in the customer journey. The decision to build these touchpoints was rapidly agreed upon, without negotiations or arguments.

At this stage, the Lego-artefacts were chosen as what they represent, such as trees, park benches, buildings and cars. Thus, the actual artefacts available, such as trees, mediated the team's collaborative construction of the scenario. For instance, Team 1's decision to start the walkthrough in a park was based on one of the participant's creative activity of using Lego-trees.

P4: "where does this happen?"

P2: "I have this nice tree. Can it be in a park?"

In this way, the available artefacts mediated shared understanding of the content of the scenario. This influence could be observed throughout the walkthroughs, and went continuously from the participants to the service representation and back:

P8 (while pointing to different places on the floor of the store): "the thing is- it's most often a queue-"

P8 (picks up a Lego figure): "then we must have a queue here"

As a consequence of the queue, the employees in the store must move away from the counter and have some more secluded time with the customers. Hence, P8 was triggered to re-examine the problem. In this way the collaboratively constructed artefact – the scenario – become both an intellectual artefact for the individual (P8) knowledge construction, as well as communicative artefacts amongst the participants going forward in the process.

As the walkthroughs progressed, the teams became more and more purposeful, and the participants started searching for specific artefacts or developing new artefacts of the service with specific functions.

Stage Two: Constructing the shared organizational context

By asking the context owner various questions, the teams reconstructed a specific organizational context. Parts of the context were represented with Lego, other parts simply discussed. Both teams focused their construction on the stores at this stage.

At one point, P2 had an idea but was unable to articulate it to the team. After some explaining using references to Lego pieces, the team seemed to be able to understand P2. P1

considered different options for how to represent the idea, and wound up suggesting a door (Figure 3), asking “so can this one be...?” The idea was to have a self-help booth where customers could perform parts of the service on their own. In this case, the Lego artefacts helped illustrate something that could not be otherwise articulated by the participants. So, even though they were not completely sure what it was, they decided to represent the unknown. Thus, the artefacts available – both individual Lego-bricks and the service representation - became important mediating artefacts for articulating own reflections and for creating a shared understanding.

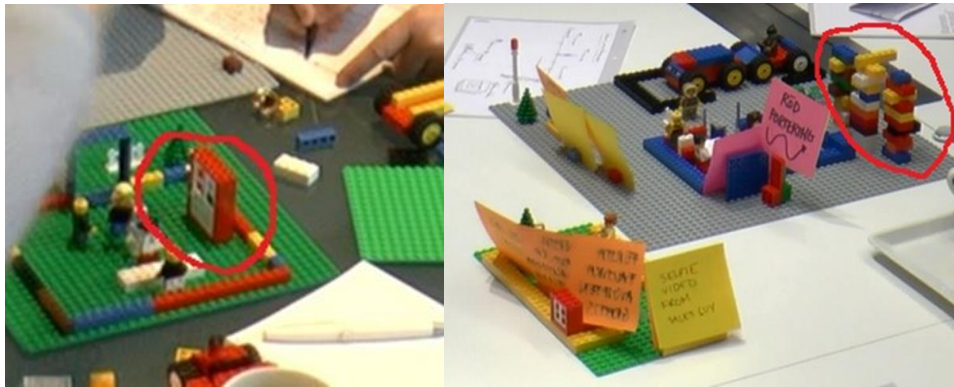


Figure 3 (left): A representation of unknown service element. Figure 4 (right): The supporting processes represented as Lego staples.

During stage two the teams were creating boundaries for themselves. Team 1 limited the scope in terms of e.g. phone brand, number of employees in the store, the extent of help the customer could receive, and other limitations. These limitations were not part of the scenario, but was rather constructed as rules that mediate the individual actions in the walkthrough processes. Thus, new rules were developed throughout the process. Team 2 imposed even greater limitations for themselves, by making the backstage systems and everything that happened before the customer chose their phone, out of scope for their process. Instead of constructing different artefacts of the backstage systems, they represented the backstage systems by three staples of Lego bricks, Figure 4.

Stage Three: adding complexity with new artefacts

Stage three was most time consuming for both teams, and started when the main scenario was settled and the main constructions were finished. The participants were perfecting the service by adding details and using post-it notes for describing specific functions or behaviours in the service. The participants also added business goals at this stage, such as how many days the customer should have to wait for the repaired phone (Team 1), or how many minutes a specific process was allowed to take (Team 2). More and more information was added to the service representation, and the complexity of the service increased. Most notably, the teams wrote the information on post-it notes and attached them to specific places in the service representation, see Figure 4. Even quite simple information, such as remembering the time-constraint for delivering a repaired phone was distributed onto the service representation rather than kept in memory by the participants. In this way, the post-it notes became intellectual artefacts that mediated articulation of individual thoughts and knowledge construction, but at the same time artefacts for inter-personal interactions in the team.

Furthermore, P3 proposed that they should focus on the emotional experience of the customer. The other participants provided suggestions for different customer feelings. Each time these aspects came up, instead of providing the generated list of emotions, the participants referred to P3 who became a repository of this knowledge and defined new rules for mediating the relation between P3 and the team.

At this stage, the discussions also started to include backstage functions and strategic

decisions. Team 1 created a business partnership of the service that was in charge of delivering the repaired phone, and that also worked as a Wi-Fi hotspot (many customers did not have access to mobile internet in the market) and the business partner could also help the customer download all the data that the customer had on the phone before it was destroyed. Also, different perspectives were weighed against each other: Team 1 discussed the customer perspective and the company perspective, and what information the different stakeholders would need. The customer perspective was also discussed in terms of what expectations they have in relation to when the phone should be delivered.

Changes of service representation

A number of changes occurred throughout the walkthroughs, but mainly during Stage three. In Team 1, the customer was enjoying the company of her friends in the park initially. The friends were represented by three Lego figures. After the accident with the dropped phone the scenario changed from the park to the operator store, and the friends became customers instead.

The servicescape was also not considered static. To accommodate for a new element in the service (an extra employee in the store), P4 tried to rearrange the current space. However, P4 soon realized that there was not enough space and increased the size of the store instead (Figure 5).

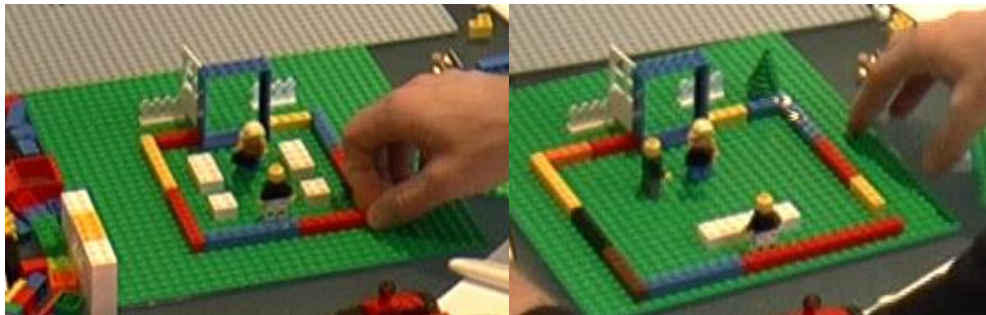


Figure 5: Team 1 increased the size of the store.

Some of the Lego pieces available had natural functions, for example, a door. When Team 1 needed to represent a new element, the team used a door. The door was no longer something you could walk through, but had changed function. Thus, the representation was not custom built to look like the artefact it represented, but the door was rather attributed with a new function that provided meaning for the participants (i.e a self-help booth).

Attributed meanings were only partly shared in the team. Some discrepancies could be identified. For instance, in relation to the previously discussed self-help booth, P3 suggested that the employees could help the customer, from the other side of the booth (the Lego door):

- P3 (pointing to the booth) “the support guy”
- P1 (also points to the booth) “oh yeah, yes, the support guy”
- P1 “okay”
- P2 (points to the booth) “this is self-care”
- P3 “mhm”
- P2 “there is no guy”
- P1 (points to the booth) “no, this is self-service”

This illustrates that even though some information is shared, there are discrepancies in the shared understanding. The individual participants thus used the different artefacts to mediate common understanding, and then to re-construct the service representation by correcting and adjusting the shared understanding.

Stage Four: Presentation and clarification understanding

Stage four was the presentations of the teams' outcome; the service representation. During this stage the new service was played out by the original context owner, but in a new version of the service that the participants had never walked through in one coherent sequence. It also revealed misconceptions, such as post-it notes that could not be understood:

P2 (looking at a post-it) "why is this here?"

During this stage, the service representation changed significantly compared to previous stages. The use of artefacts became more playful. Presenters used the figures to show the movement of the customer (Figure 6), they added personal comments about what happened to the customer and how she felt at the moment. The customer journey was enacted more as a coherent service, compared to before when only short sequences or behaviours were enacted.



Figure 6: Using a figure to enact the journey.

The customer journeys were not only explored from a customer perspective, but also considered the role and experience of employees and other stakeholders. For example, Team 1 talked about having a competition between employees, but changed that to being a competition between different stores instead, because it was a "healthier" form of collaboration. The teams talked about backstage solutions also during the presentations, but generally focused on the customer journey. Some elements that Team 1 talked about as backstage elements were: business intelligence (BI, to predict time of delivery of new phone), customer relations management (CRM, different ideas about how to collect data about the customer), self-service, net promoter score (NPS), and self-service ratio. This means, the service representation mediated new understanding between the presenter and the team, but also across the two teams.

Discussion

In this paper, we have used socio-cultural perspectives – or more specifically the activity model of Engeström (1987) – as analytical lens for understanding the social activity of desktop walkthrough. Socio-cultural theories and Engeström's model of human activity is a useful lens for the study of desktop walkthrough due to its focus on the socially- and artefact-mediated activity. The activity model has helped us to structure the complexity of desktop walkthrough in terms of how the different aspects of the model – artefacts (e.g. building blocks, figures, post-its), the rules of communication (e.g. specific conditions and operational practices in the given scenario or marketplace) and the division of labour (e.g. experts areas, position in company) – mediated the participant's actions towards a common outcome of a service presentation (a customer journey, aligned backstage processes). It has further helped us to explore how the different aspects of the activity model continuously developed throughout the desktop walkthrough process, such as e.g. how the participants

co-create and change the rules of communication as well as how the artefact changed function. The activity model was thus valuable for structuring the complexity of analysis and for understanding the artefact- and social mediation of desktop walkthrough.

The analysis also showed how the desktop walkthrough in itself is situated in a social and cultural context with participants that have their individual motives and intentions for the collective activity. The walkthrough unfolded without clear boundaries, stimulating the participants' creative and innovative thinking, and thus making each journey unique. The desktop walkthrough allowed the participants to dynamically influence and change the events. It is important at the same time to consider that much knowledge that was generated was tied to the context of use, and distributed amongst the participants of the walkthrough. Hence, knowledge from desktop walkthrough sessions will have to be documented some way to be useful also outside of the team who worked with it. Much information about the walkthroughs was lost between the work in the teams and the presentation of the service. The knowledge is tied to the participants and their experiences rather than to the representation, as with any ongoing technique.

Concerning the fact that the participants were non-designers, but leaders and decision makers, they were generally satisfied with the technique and the outcome. When asked, the participants said it was fun and meaningful. They also said that they mostly used the building blocks to visualize what they were talking about. However, they felt that they did not have time to evaluate whether they were working on the right thing, and that the technique could have been much more effective if the facilitator had pushed the participants to enact more and use the LEGO more. Furthermore, they emphasized that desktop walkthrough was both a faster and a better way than simply discussing or sketching, and implied low threshold in use. This was considered vital in an operational practice of non-designers.

By acting as a representation of places and processes, the desktop walkthrough makes the service tangible and available for collaboration and coordination. In our case, the processes of designing for a coherent customer journey experience increased the visibility of the business leaders' responsibilities and metrics. On the other hand we can conclude that in team collaboration with desktop walkthrough there is a danger that team members will avoid looking into the "black boxes" – into what they do not think they have a sufficient knowledge of – or influence on. The tasks to visualize something highly complex and ambiguous may lead to not building anything, or to very abstract representations. However, this effect also puts focus on what the participants lack understanding of, which can be a beneficial practice for an organization. The "black boxes" can clearly signify the areas of organizational understanding that e.g. have to be further developed

Self-imposed limitations. During stage 2 the participants added limitations and in stage 3 they added goals (e.g. time limit for repair and for waiting, in group 1 and 2 respectively). These limitations can act as triggers (Eriksen, 2014) or drivers for creativity and drive the walkthrough forward if the groups also consider how to overcome limitations and achieve goals. Placing some restrictions on what is possible and introducing things like delays, mistakes and failures can be a good way of challenging and improving the result of desktop walkthroughs from a facilitation point of view. Having participants with domain-specific knowledge can enhance conversations and explorations during the walkthroughs. The (informal) team leaders both had knowledge about the market and/or service that was being developed, thus improving the quality and practical usefulness of the designed service concepts.

Conclusion

Desktop walkthrough can be seen as a distinctive type of design game. It is distinct from most other design games in at least two ways: a) it acts as a representation of a future

service with some functional and/or physical equivalence, and b) it lacks restricting rules (it is autotelic). The material used influences the activity but does not predict outcomes of desktop walkthroughs. It can be used to explore constellations of service resources and interactions across supporting processes and support alignment of the service frontstage and backstage.

The result of a desktop walkthrough is not automatically shareable since the activity is situated and the outcome unique. Hence, the resulting representation is not a boundary object – something must be done in order to summarize and document the knowledge generated by the desktop walkthrough and make it shareable. The result of a desktop walkthrough depends on the way it is used, but on a general level can be said to include the interconnected process and outcome of the activity. By process, the interactions, developments, discussions and changes to the physical representation is intended. The process is important in the sense that this is where any potential knowledge and insights emerge. The people involved in the activity and their roles and previous knowledge, the material used, the time frame, starting condition and other contextual factors influence the process. Many alternatives and choices were discussed during the walkthrough studied in this paper, most of those were however omitted during the presentations. Some way of continuously capturing knowledge during the process could have improved the technique greatly. For a project on a more general level, the process and the associated knowledge produced during it is perhaps more important than the outcome.

The outcome is partially the consequence of the process, and is constituted by a material and an immaterial aspect. The material representation of the new service is a coagulation of the collectively created elements. By itself, this representation holds very little value since each person who sees it will have a unique understanding of what the building blocks represent. The physical manifestation of the service is just one instance in a continuum of representations, and more importantly – the material instance is not the service. The knowledge and insights distributed among the participants make the representation meaningful, but the participants' individual understanding of the service overlaps only partially, since they will all have their own understanding of the collective activity. In the observed case we saw how the participants helped each other and did their best to coordinate their respective understandings of the service. At some points, the participants did now know enough to make informed choices or decisions. These areas are also important to document so that they can be further examined later on.

The many different perspectives on a service, represented by the different participants, is a strength, and can be important to capture as the result of a desktop walkthrough. Video and/or audio recordings of actual work with desktop walkthroughs are probably not the best way to capture the insights and knowledge since they quickly become long and confusing unless hours are spent studying the recordings. Purposefully created, short and informative videos that summarise e.g. insights (about what the service should and should *not* do), choices, opportunities, behaviours and so on might be a good way to communicate the results. Using a definite form of representation, (such as a blueprint, customer journey map, or storyboard) can turn the result into a persistent point of reference, and thus useful as a boundary object.

Acknowledgements

The research was conducted in the Center for Service Innovation (CSI, <http://csi.nhh.no/>) project and the VISUAL project (2012-2016, funded by The Research Council of Norway through the programme User-driven Research Based Innovation (BIA)).

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Research in the First Four Service Design and Innovation (ServDes) Conferences

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Abstract

In this paper we take a closer look at the papers published during the first four Service design and innovation (ServDes) conferences and sources that the authors of those papers have referenced. The analysis uses the academic search engine Scopus and the references found in the conferences' Proceedings. In total 206 authors have contributed to the 105 research papers presented at ServDes, and 53% of all ServDes papers have been referenced at a later ServDes. ServDes authors are informed by research published mainly after 1999 (79,2%), primarily within the fields of Business, Computer Science and Engineering. We also look at what authors publish their research at ServDes and the percentage of self-referencing (27%) as well as within-conference referencing (2,4% of references) to examine the progression within the field through the research published at ServDes.

KEYWORDS: field overview, servdes research, reference analysis, meta-research

Introduction

Any field of study needs meta-knowledge. That is, knowledge about what knowledge is being produced, from what perspectives (research backgrounds and approaches including the people that conduct the research), how it builds on and relates to other fields, and how the field accumulates knowledge, progresses and develops. Based on such knowledge it should be possible to e.g. suggest fruitful directions of research within the field (c.f. Biemans,

Griffin, & Moenaert, Forthcoming). The current paper is an initial attempt to describe aspects of the research presented during the first four Service Design and innovation (ServDes) conferences, by looking at the authors of- and references made, in the 105 research papers published so far at ServDes. The study does not look at the content of the produced research, but rather lays the foundation and identifies the context for future studies of research content. Our interest lies in understanding what ServDes researchers read and to some extent, what their backgrounds are. It is also of interest to look at the progression within the field and the extent to which ServDes authors reference other ServDes papers. We have conducted a search in the Scopus (Elsevier, n.d.) database using the papers from ServDes, and made an analysis based on the references in the research papers published in the proceedings¹.

ServDes History

ServDes was initially called the Nordic Conference on Service Design and Service Innovation, and the first conference was held in Oslo, Norway on the 24th – 26th of November 2009. On the ServDes webpage (ServDes, 2015) you can read the following about the history of the conference:

ServDes conference was born on a bridge in Pittsburgh U.S. during the Emergence 2007 Service Design Conference organized by Carnegie Mellon University. Professor Simon Clatworthy (AHO), senior lecturers Virpi Kaartti (Laurea UAS) and Janne-Valtteri Nisula (Laurea UAS) decided to create a scientific multidisciplinary Nordic Service Design & Innovation conference. Soon professor Stefan Holmlid (Linköping University) and professors Nicola Morelli and Christian Tollestrup from Aalborg University joined the initiative. ServDes founding members are: AHO, Laurea UAS, Linköping University, Aalborg University.

The organizing committees of the conferences made some strategic decisions after the first conference, such as making it a bi-annual event on years opposite to the Nordic Design Research Conference (Nordes) and on the same years as the Participatory Design Conference (PDC), but during the first half instead of the second half of the year. This also helped avoid clashes with other possible fora for publishing service design. It was also

¹ The proceedings can be found online.

2009: Simon Clatworthy, Janne-Valtteri Nisula, Stefan Holmlid (2009). Conference Proceedings ServDes.2009; DeThinking Service; ReThinking Design; Oslo Norway 24-26 November 2009 http://www.ep.liu.se/ecp_home/index.en.aspx?issue=059

2010: Stefan Holmlid, Janne-Valtteri Nisula, Simon Clatworthy (2010). Conference Proceedings; ServDes.2010; Exchanging Knowledge; Linköping; Sweden; 1-3 December 2010 http://www.ep.liu.se/ecp_home/index.en.aspx?issue=060

2012: Päivi J. Tossavainen, Milla Harjula, Stefan Holmlid (2012). ServDes.2012 Conference Proceedings Co-Creating Services; The 3rd Service Design and Service Innovation Conference; 8-10 February; Espoo; Finland http://www.ep.liu.se/ecp_home/index.en.aspx?issue=067 and

2014: Daniela Sangiorgi, David Hands, Emma Murphy (2014). ServDes.2014 Service Future; Proceedings of the fourth Service Design and Service Innovation Conference; Lancaster University; United Kingdom; 9-11 April 2014 http://www.ep.liu.se/ecp_home/index.en.aspx?issue=099

decided to drop the “Nordic” from the title to make it more inclusive and to respond to the large international interest that the conference gained already in Oslo. This is also when the name ServDes was established and when ServDes was emphasized as the premiere research conference about service design, as opposed to an event for networking, or only aimed at industry. This meant adopting a rigorous, double blind peer-review process for the research papers. At the same time, it was the intention of the organizers to keep with the interest of, and contributions from, the practicing service design community. The first conference had a day dedicated to industry cases, and in 2010 in Linköping, the practitioner presentations were mixed in with the other research paper presentations to increase the exchange of knowledge and perspectives, in line with the conference theme that year (ServDes, 2010). After the two first conferences, the amount of contributions (both submitted and accepted) has increased. The conference is described as “the premier research conference for exchanging knowledge within service design and service innovation studies” (ServDes, 2015), making it ideal for studying the early development of the young service design field.

Service design research

In this chapter, we discuss how design and service themes have emerged in different fields. Several authors helped shape early research in service design (Holmlid, 2007; Manzini, 1993; Moritz, 2005; Maffei, Mager, & Sangiorgi, 2005; Pacenti & Sangiorgi, 2010) but the influence and contribution from the do/think tanks RED and Demos (Burns & Winhall, 2006; Burns, Cottam, Vanstone, & Winhall, 2006; Parker & Heapy, 2006; Vanstone & Winhall, 2006) should not be overlooked. The influence from service marketing and management has also been substantial. Shostack (1982) provided an early and simplistic example of service design in *How to design a service*. The special issue *New issues and opportunities in service design* (Verma, Fitzsimmons, Heineke, & Davis, 2002) is an early example of a serious look at service design and its potential value from a management perspective. Examples of how service design was understood in marketing and management fields can be found by looking at the *New service development (NSD)* literature (e.g. Scheuing & Johnson (1989), Edvardsson & Olsson (1996), and Alam & Perry (2002). It has been suggested by several researchers that the contribution from design can be more than “innovation” or as a specific stage in the NSD process, and that design offers methods, techniques and approaches that makes it useful throughout the development of services (Yu & Sangiorgi, 2014; Wetter-Edman, 2014; Blomkvist, Holmlid, & Segelström, 2010). While the previous role of design in service development was “silent” (Gorb & Dumas, 1987; Ponsignon, Smart, & Maull, 2011), designers are now entering and changing the field (Tether, 2008; Blomkvist, 2015).

Very little empirically based meta-studies of service design research have been reported in academic literature (see Blomkvist, Holmlid, & Segelström (2010) for an exception). Contributions to our understanding of the emergence and role of service design have been made in a number of service design doctoral theses (Segelström, 2013; Wetter-Edman, 2014; Clatworthy, 2013; Singleton, 2012; Secomandi, 2012).

Method

We looked at references made in papers from the ServDes conferences, both in Scopus and by extracting the text from the proceedings, identifying relevant information and analysing it with Microsoft Excel 2013. Searching for research about service design is difficult for several reasons. Both the terms service and design can of course be found in other fields. In some fields the terms have completely different connotations, and sometimes the terms are partially overlapping. Different interpretations can be found also in fields with similarities to service design. The analysis is also made more difficult by the fact that the ServDes proceedings are not part of any big, searchable database with meta-information such as authors, references, keywords etcetera. Instead, the proceedings are stored as PDFs on Linköping University's Electronic Publication website. We describe the analyses of the Scopus search and proceedings, including some limitations, below.

Scopus Analysis

We used the academic search engine Scopus to look at what ServDes authors are referencing. Scopus is "the largest abstract and citation database of peer-reviewed literature: scientific journals, books and conference proceedings." (www.scopus.com). 483 out of all (~2499) references made by researchers published at ServDes could be found in Scopus. Limiting the search to only include sources in Scopus means that many potential domains and sources of publication are excluded, such as ServDes itself for instance. Out of the 483 references found in Scopus, 353 mention the word "design" somewhere in the paper/article, and 265 mention "service".

What makes searches for service design literature difficult is that the words service and design are used frequently, and even the term "service design" often occurs in databases with different meanings. For instance, it is shared with a sub-field of telecommunications (Pang, 2009). In Scopus, a search for "service design" or "design for service" generates 4338 results, but only 44 of those overlap with the references made by authors at ServDes. Hence, searching for the terms "service design" or "design for service" generates a lot of false positives and at the same time fails to include the majority of what service design researchers consider relevant references. The reason why we include the Scopus search, despite its poor

coverage of the conference references is that some meta-data that is not possible to extract manually can be found here. For instance, the subject area can only be found by looking at the meta-data collected and presented within the database.

Proceedings Analysis

No metadata is available for the proceedings of the conference, making analysis of content, authors, references and so forth, difficult. We therefore transferred all text from the proceedings (.pdfs) to .txt format and then used Sublime text 2 (version 2.0.2, 64 bit, www.sublimetext.com) to clean up and structure the text. It is not clear if or how many references were not properly transferred from PDF to Sublime, or how many were lost during the clean-up of the text. We then transferred the text from .txt to .xlsx. Since the same paper template has been used, with minor changes, during all four conferences it was possible to transfer most of the references to Excel. It is not known exactly how many references that were not successfully transferred. Potential mistakes might have occurred when information was extracted from the proceedings (.pdf) to text (.txt), and if the references were not properly documented in the papers in the first place.

In the analysis we only looked at full research papers, since this study is specifically looking at research presented at ServDes. However, the workshops and case-papers have also contributed to the discourse and developments of the field, but there is no way to distinguish between industry and research contributions among cases, workshops, and short papers from some of the years. Due to changes in the scope and focus of the conference, the number of accepted research papers has varied substantially (see Table 3 below).

Distinguishing between journals and conferences among the references is difficult. The citations should contain the word Journal for all journal references and Proceedings for all conferences. However, some references omit these identifiers (e.g. Harvard Business Review, interactions, Design studies) as well as some conference references (e.g. IASDR, Nordes, DIS). To find as many of the journals as possible (without having to count them by hand) we searched the references for the words “journal” and “int. j.”, and for the conferences we searched for the words “conference”, “proceedings” and “proc.” (disregarding upper or lower cases). During the first four ServDes conferences, 2499 references have been made. Some of them are poorly formatted (e.g. the authors have not used the provided template for references) which leads to some problems when analysing and organizing them. There is also a potential risk that the transfer from PDFs to Sublime text, or that processing the text in Sublime led to some omissions. The authors of ServDes research papers were pasted into MS Excel, and placed into individual cells. Some of these references end with “et al.”, meaning that some authors have unfortunately been left out.

Results

Since the search in the ServDes proceedings covered more papers than Scopus, the bulk of the analysis was focused on that search. We start by presenting the Scopus search here, followed by the proceedings search.

Subject area	Number of hits (total 751)		Author	Times cited
Business, management and accounting	215	28,6%	Vargo, S.L.	9
Computer science	154	20,5%	Von Hippel, E.	8
Engineering	95	12,6%	Bitner, M.J.	7
Social Sciences	58	7,7%	Buur, J.	6
Economics, Econometrics and Finance	53	7,1%	Edvardsson, B.	6
Psychology	33	4,4%	Lusch, R.F.	6
Medicine	32	4,3%	Brown, S.W.	5
Decision Sciences	26	3,5%	Robert, G.	5
Arts and Humanities	22	2,9%	Maglio, P.P.	5
Mathematics	18	2,4%	Grönroos, C.	5

Table 2: The most cited authors based in the Scopus search.

Table 1: Subject area and number of references made to articles in each area respectively. Note that references can have more than one subject area due to journals and conferences having multiple classifications.

Scopus results

Service design is a young research field and it needs to import previous research from other fields. In fact, during the ServDes conference, references (that can be found in Scopus) have been made to 20 other subject areas, excluding two hits in “undefined” areas. Table 1 shows the top ten hits. The subject areas in Scopus are imported directly from the journals and conferences included in the database. Within the results from Scopus we can also look at the top referenced researchers, see Table 2. The table shows the top 5 cited authors in the Scopus search. Places 4 and 5 are shared. This result is dominated by service marketing and management (exceptions being von Hippel and Buur) researchers. Many service research journals are included in the Scopus database, while the design journals; Design studies, Design issues and International journal of design, are not.

Proceedings results

The total number of research papers (presented at the first four ServDes conference) included in the analysis was 105, see Table 3. At the first conference in 2009, 17 research papers were presented. In Linköping the year after, only 11 research papers were accepted to give more room for workshops and practitioners. This number had grown in the subsequent conference, in 2012, to 29 accepted research papers, and increased even further in 2014, to 48 research papers. The analysis shows that ServDes papers on average contain 23,8 references.

Year	Research papers	References made	References per paper
2009	17	489	28,8
2010	11	293	26,6
2012	29	535	18,4
2014	48	1182	24,6
Total	105	2499	23,8

Table 3: Papers, references and average number of references for each year.

One or two authors (about 61% of the papers) most often write papers at ServDes (see Table 4). About 17% has more than three authors and a single author writes around one third of the papers. 206 unique authors have written the 105 research papers published at ServDes, out of which six authors have published three or more papers at the conference, see Table 5. There is no official information about the acceptance rate of the conference. Most of the references made during ServDes refer to papers published after 1999 (79,2%). Many papers reference work published after 2007 even (44,7%).

Year	Number of authors										Total
	1	2	3	4	5	6	7	8	9	10	
2009	11	2	1	0	2	1	0	0	0	0	17
2010	5	4	1	1	0	0	0	0	0	0	11
2012	10	5	6	4	2	1	0	0	0	1	29
2014	10	17	15	5	1	0	0	0	0	0	48
Total	36	28	23	10	5	2	0	0	0	1	105
%	34%	27%	22%	10%	5%	2%	0%	0%	0%	1%	
Accu.											
%	34%	61%	83%	92%	97%	99%	99%	99%	99%	100%	

Table 4: Percentage of number of authors and papers per year at ServDes.

Publications*	No. of Authors	Authors
1	179	
2	20	
3	3	Clatworthy, S. Følstad, A. Morelli, N.
5	2	Blomkvist, J. Sangiorgi, D.
9	1	Holmlid, S.

Table 5: Publications per author for all conferences.

**No author has published 4 or 6-8 papers at ServDes, yet.*

It is interesting to look at both what is referenced in general (e.g. journals, conferences, books etc.), but also at what, when and who have been referenced and has published at

ServDes. Tabel 6 shows the total number of references to ServDes research made at ServDes, compared to the overall references. 2,4 % of the papers at ServDes cite previous research at the conference, with the highest, 3,4 % being the 2012 conference. Each author that has been referenced at ServDes has been referred to on average 1,8 times. The amount of references within ServDes is indicative of the progression within the field – i.e. are ServDes researchers building on previous research at the conference or mainly building their publications on research published elsewhere? The ratio of references per paper to ServDes has increased each year, with an average of 0,726 during the last three conferences. It is possible that some authors reference many previous ServDes papers, and others none.

Year	Total number of references	References to ServDes papers			Total	Percentage ServDes references	Ratio
		2009	2010	2012			
2009	489	3*	0	0	3	0,6 %*	0,104*
2010	293	5	0	0	5	1,7 %	0,188
2012	535	12	6	0	18	3,4 %	0,976
2014	1182	11	7	7	25	2,1 %	1,015
Total	2499	31	13	7	51	Mean** 2,4 %	0,726

Table 6: References per year and in total, and percentage and ratio of ServDes references.

**There were three references mad during ServDes 2009 to papers accepted to the conference the same year. **The mean does not include 2009 since there were few papers to reference the first year, though see*.*

Out of the 51 references within ServDes, 14 (27%) are self-references divided between 8 authors. This means that 73% are not self-references (no author of the paper is also an author or co-author of the cited ServDes paper). This can be compared to the amount of self-references in the overall material (not only references to previous ServDes publications i.e. all references), where 10,1% reference themselves.

Author	Year	Name of papers	Times Cited
Holmlid, S.	2009	Participative, co-operative, emancipatory: From participatory design to service design.	4
Segelström, F.	2009	Communicating through Visualizations: Service Designers on Visualizing User Research.	3
Wetter Edman, K.	2009	Exploring Overlaps and Differences in Service Dominant Logic and Design Thinking	3
Blomkvist, J.	2010	Service prototyping according to service design practitioners.	3
Holmlid, S.	2012	Embedding service design: the long and the short of it.	3

Table 7: The five ServDes papers most cited at ServDes.

Since people reference the same paper more than once the number of unique papers referenced and published at ServDes is lower than the total number of referenced papers. The number of unique references is 30. Compared to the total number of research papers published 2009, 2010, and 2012 (57), the percentage of referenced papers are 53%. This means that about half of the papers published at ServDes have been cited at a later ServDes

conference. The five most cited papers that are both published and cited within the conference can be seen in Table 7.

Out of the overall 2499 identified references, 11 were not properly identified leaving 2488 more or less well formatted authors, editors, organisations, and other sources. The most commonly cited reference overall at ServDes is the book *This is Service Design Thinking* (2010), with 18 references. However, this is not the whole truth since several authors also cite chapters in the book. The most cited article is *Evolving to a New Dominant Logic for Marketing* (14) by Vargo & Lusch (2004). The Demos report *The Journey to the Interface* (Parker and Heapy, 2006) and the book *Design for Services* (Meroni and Sangiorgi, 2011) were both referenced 14 times. See Table 8 for all sources referenced 10 times or more.

Author	Year	Name	Published in	Times Cited
Stickdorn, M.Schneider, J.eds.	2010	<i>This is Service Design Thinking.</i>	Book	18
Vargo, S L. Lusch, R F.	2004	<i>Evolving to a New Dominant Logic for Marketing.</i>	Journal of Marketing	14
Parker, S. Heapy, J.	2006	<i>The Journey to the Interface.</i>	Report	14
Meroni, A. Sangiorgi, D.	2011	<i>Design for Services.</i>	Book	14
Holmlid, S.	2009	<i>Interaction design and service design: Expanding a comparison of design disciplines.</i>	Nordes Conference	12
Shostack, G L.	1984	<i>Designing Services that Deliver.</i>	Harvard Business Review	12
Vargo, S L. Lusch, R F.	2008	<i>Service-dominant logic: Continuing the evolution.</i>	Journal of the Academy of Marketing Science	11
Sanders, E B N. Stappers, P J.	2008	<i>Co-creation and the new landscapes of design.</i>	CoDesign Journal	10
Buchenau, M. Fulton Suri, J.	2000	<i>Experience Prototyping.</i>	DIS conference	10
Ostrom et al.	2010	<i>Moving Forward and Making a Difference: Research Priorities for the Science of Service.</i>	Journal of Service Research	10
Sangiorgi, D.	2009	<i>Building Up a Framework for Service Design Research.</i>	EAD conference	10

Table 8: Sources cited 10 times or more during ServDes 2009 – 2014.

Looking at the most referenced sources and authors reveals what and who the main influences are for ServDes authors. The list containing the most cited authors at ServDes can be seen in Table 9. A search for journal and conference publications showed 419 journal results and 323 conferences among the total of 2496 instances. Due to incongruent format of referencing, the margin of error in this search is believed to be high. The actual number of journal and conference references are believed to be significantly higher, but the ratio, 4:3, might be an indication. Searching for any source with either “www” or “http” indicates that the number of web sources is 233.

Author	Citations
Stefan Holmlid	92
Daniela Sangiorgi	71
Lucy Kimbell	44
Ezio Manzini	40
Mary Jo Bitner	38

Table 9: The five most cited authors at ServDes and number of references.

Journal	Founded	References
Design Issues	1984	32
International Journal of Design	2007	30
Design Studies	1979	21
The Design Journal	1997	5

Table 10: Number of references to specific design journals.

References to design-specific journals were not possible to search for in the Scopus search. Instead, the references found in the proceedings were searched for occurrences of the words Design Studies, Design Issues, International Journal of Design, and The Design Journal. This revealed that Design Issues is the most referenced design journal at ServDes, see Table 10.

Concluding discussion

At this point in time, after four editions of ServDes and while service design as a field is maturing, it should be possible to say something about the progression of the research at the conference. About half of the papers published at ServDes so far have also been referenced at ServDes (53%), which is a high number considering that this is not the only source of service-related research. Self-referencing is partly behind this number since 27% are self-references within ServDes. This can be compared to the overall number of self-references, 10%. Hence, ServDes authors reference their previous work at ServDes to a larger extent than their work published elsewhere. This is part of a cumulative research approach: "Given the cumulative nature of the production of new knowledge, self-citations constitute a natural part of the communication process." (Costas et al., 2010). Many of the self-citing authors are (naturally) returning authors, and have published on 3 or 4 of the first 4 conferences. The average percentage of references to ServDes at ServDes are 2,4% of all references. The ratio of references to ServDes papers per conference has increased, and the average ratio for the last three years is 0,726. These numbers serve as baselines for future discussions about the progression of service design research at ServDes.

Looking at Scopus indicates where the main journal influences for ServDes research comes from. 28,6% of the journals referenced at ServDes have been categorised as Business, Management and Accounting. We can also see that many of the most referenced authors have a background in these fields, e.g. Vargo, Bitner, Edvardsson, and Lusch. The second most common categorisation is Computer science (20,5%).

Widening the search to include all references made at ServDes shows that Holmlid and Sangiorgi are the most referenced authors overall. They both have a background in interaction design, which together with participatory design (through e.g. Jacob Buur) is the strongest design influence on ServDes research. The most cited work at ServDes is the book *This is Service Design Thinking* (2010), edited by Stickdorn and Schneider. Many also reference *Evolving to a New Dominant Logic for Marketing* (2004) by Vargo & Lusch, *The Journey to the Interface* (2006) by Parker & Heapy, and *Design for Services* (2011) by Meroni & Sangiorgi. The most cited references are both specifically about service design and some from other domains.

If ServDes is the premiere research conference about service design, it serves as a bi-annual snapshot of the progression, themes, directions and discussions of the field. As such, ServDes should consider moving the proceedings to a searchable database with metadata to make searches easier. This will provide greater insight into the research conducted at the conference and by its participants. The idea is not that a ServDes repository (searchable database) should coagulate and ultimately fix the body of literature that each service design researcher should read, but it could show what has been read, and what has laid the foundation for the current state of the field. This means that it can also work as a natural way into the field for anyone who considers contributing, and it can help identify the current research streams, thus illuminating future orientations in service design and inspiring new research.

This research should be seen as a snapshot of the current state of ServDes research that can be used as a baseline and reference for future studies. Conducting studies about the research presented at future conferences will also substantiate and contextualise the results presented in this paper. Considering the total amount of research papers published thus far at the conference it would also be possible to do a literature study aimed at clarifying and categorising the papers, to follow up previous studies looking at the published content within the field (Blomkvist, Holmid, Segelström, 2010).

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DISRUPTING SERVICE DESIGN

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Abstract

This paper describes a series of examples of disruptive design in practice, taking place in a service design context and observed as part of a wider case study. The subject of the case study was a large UK based manufacturer/retailer for-profit organisation and the disruptive design intervention was focused on the design of a new form of resource to replace an existing staff handbook, viewed by the organisation as a key part of its internal services to employees. These examples are given in relation to the attitude, process, methods and outcomes of a disruptive design approach. Our findings include the development of design knowledge amongst participants, the emergence of active designers and the potential value of unfinished artefacts. We conclude by considering whether these examples suggest opportunities for service design.

KEYWORDS: disruptive design, design activism, design knowledge, unfinished artefacts

Introduction

In this paper we suggest that adopting a disruptive design approach may offer opportunities to compliment the practice of service design.

A disruptive design approach involves an intention to disrupt people and their organisations through provocation and encouraging the making of artefacts. We do not present an exhaustive analysis of disruptive design; instead we have set out an overview of the background to disruptive design and then chosen a series of relatively clear examples of disruptive design in practice, taken from a recent case study involving the design of services. As we view our disruptive design practice, as designers and researchers, in terms of *attitude*, *process*, *methods* and *outcomes* we have given examples of each of these themes and the relevant findings. We conclude by considering what a disruptive design approach may offer to the practice of service design.

In suggesting a distinct vocabulary for a disruptive design approach we are mindful that some of the aims of our approach and many of the practices described in the case study will be familiar to service design practitioners and researchers. The disruptive design approach we describe shares some of the stated aims, in particular the intention to provoke, of established design movements such as speculative design and critical design. We take the view that these qualifications – *speculative*, *critical* and even *disruptive* – are unhelpful, and that what matters is the impact and, in our case, whether “you can find people to testify that they were provoked” (Tonkinwise, 2015). The idea that these are all essentially just forms of *design* applies equally to our practices and methods, and, as noted by Kimbell (2008), service design shares much common ground with other kinds of design practice and theory.

Background

A disruptive design approach comes from two distinct areas: firstly, the rejection of traditional design processes and, secondly, design activism.

Rejecting traditional design processes

Celaschi suggests that:

The discovery of disruption and the consequent decision to transgress as a rule takes place incidentally ... via an intense journey, a formative event or an experience that opens up a door left ajar in the mind through which the discomfort of dissatisfaction with the everyday way of working had already begun to filter. (Celaschi et al 2013)

In our case the *formative experience* has been the use of established linear design processes within both the design school and industry. These processes are typified by Ulrich and Eppinger's generic process (Figure 1) and also by, the currently fashionable, design thinking processes, of which d.school at Stanford University is an exemplar (Figure 2).

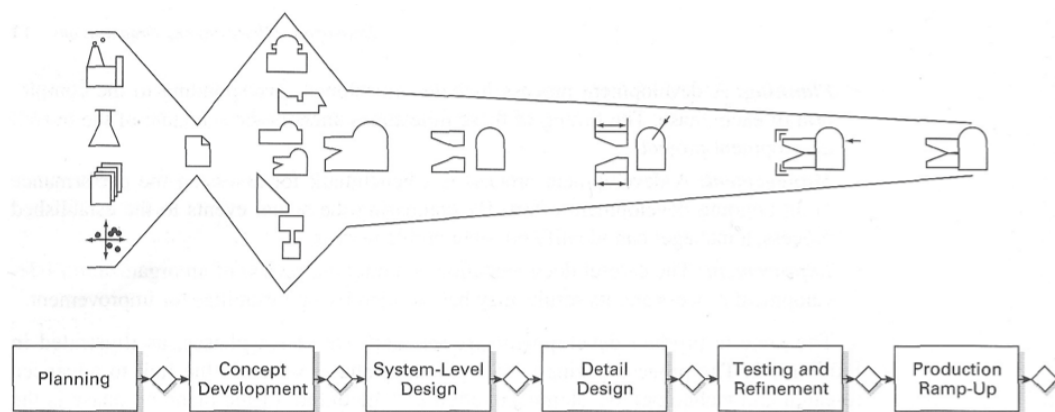


Figure 1: The generic development process (Ulrich & Eppinger, 2012)

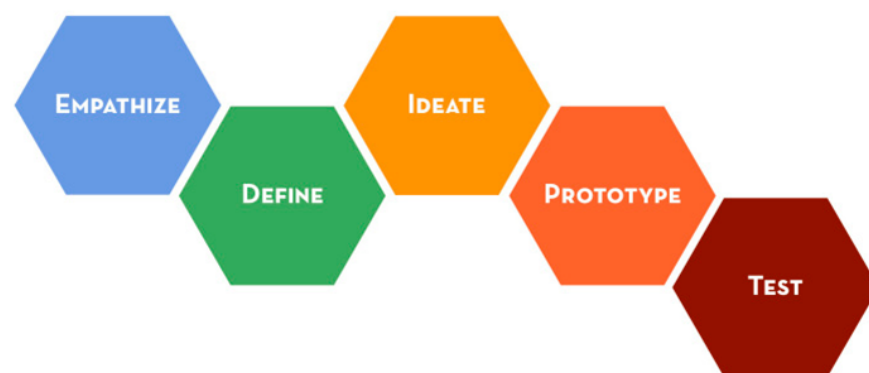


Figure 2. The design thinking process (Stanford University, 2015)

These established processes are undoubtedly valuable, however we feel they do not reflect the messy non-linear nature of actual design practice and research. In the context of the service design Stickdörn (2010) notes that “the proposed process is just a rough framework and should not be considered a prescriptive, linear how-to-guide” and that

“the very first step of a service design process is to design the process itself”.

Celaschi characterises such rejection as “disobedience”, a “disavowal of methods” and “transgression” whilst Galli et al (2014) place importance upon “the violation of usual rules, trying disruptive actions, with unpredictable effects.”

Galli’s model of a disruptive design approach (Figure 3) shows disruptions and modifications to the decision process, which we have interpreted as being applicable to the decisions within each stage of the design process. Unfortunately Galli’s model focuses on what a disruptive design process *is not* and does not go far enough to say what a disruptive design process *is*.

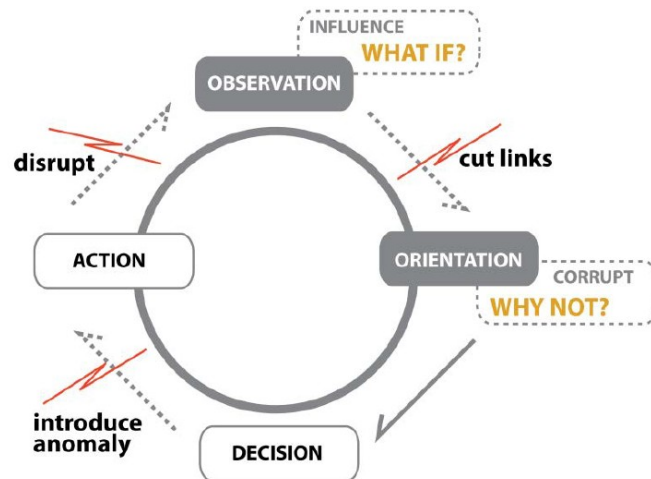


Figure 3. The decision process adapted to support a disruptive design approach (Galli et al., 2014)

Our other concern with Galli’s model is that Galli sees the inspiration for this disruptive design approach as disruptive innovation, famously modelled by Christenson et al (2006) and something that can be learnt by designers from innovation specialists. This ignores significant design movements that suggest a disruptive design approach including the Situationists and Debord’s notion of *dérive* (Debord, 2006), the radical Italian architects such as Superstudio and design provocateurs such as Droog (de Rijk, 2010). These are all forms of design activism and we suggest that a disruptive design approach is another form of design activism.

Design activism

A comprehensive definition of design activism is offered by Faud-Luke:

design thinking, imagination and practice applied knowingly or unknowingly to create a counter-narrative aimed at generating positive social, institutional, environmental and/or economic change (Faud-Luke, 2009)

In the context of our own practice this use of design to create a *counter narrative* is evident in methods such as encouraging participants to make protest posters, such as that shown in Figure 4. Indeed this materiality is an important element, both of design activism and our own practice, and we agree with Lenskjold et al’s (2015) observation that “a material translation though some form of material incursion” is required.

We recognize the apparent conflict between the *social* aims of design activism and the for-profit aims of our case study. We suggest that design activism has moved on and now accords with Julier's argument that a form of "everyday" design activism exists (Julier 2013): focusing on making things better through utility, development, function and process, and working with economic systems, rather than simply being a method of protest. At the same time we accept the criticisms levelled by Markussen (2013) and Berglund (2013), and acknowledged by Kaygan and Julier (2013), that design activism will not be impactful if it is reduced to exhibition material or used to maintain the status quo. Our argument is that we are seeking to use disruptive design to provoke and challenge the status quo, in various contexts including the design of services, and that it is impactful.

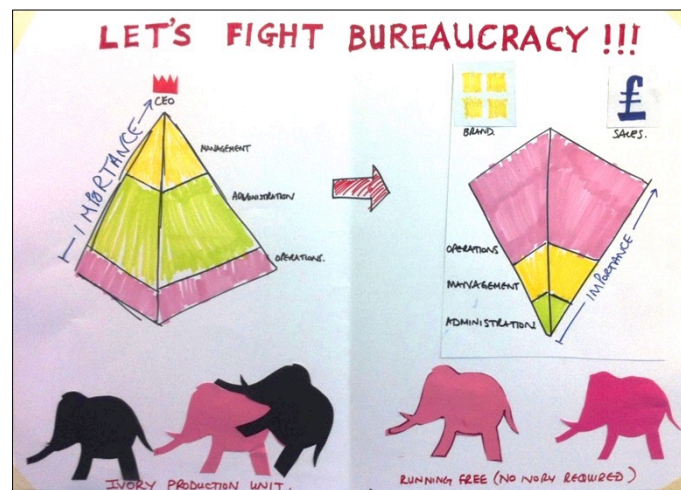


Figure 4. A protest poster made by participants during the case study

Case study

The examples of disruptive design in practice referred to below arose during a wider case study. During this research we followed a participant observation methodology where the principal researcher was a designer participating in the disruptive design interventions. This approach was both opportunistic and open ended and followed Jorgenson's model of fieldwork (Jorgensen, 1989). Research activities were observed using mixed methods and from a qualitative perspective.

The client organisation ("the client") operated in a UK manufacturing and retail sector worth £4 billion and which had grown by an estimated 8% in value between 2009 and 2014 (Mintel, 2014). In order to remain competitive within this marketplace the client had recently undergone a process of centralisation that involved moving away from regional management to a single central senior management function. At the time we were working with them, the client employed 20,000 people across the UK, spread between retail outlets and manufacturing plants.

In mid 2014 we facilitated a disruptive design workshop for a group of senior managers employed by the client. The brief was wide: to introduce the participants to disruptive design. One of the senior managers, Manager A, who took part in that workshop,

belonged to the client's People team, or "human resources". Following the initial workshop Manager A introduced us to a colleague, Manager B, also from the People team, who had a service design problem. Manager B had been charged with creating a new form of resource to replace an existing staff handbook. The resource would form the core reference material in the services provided by the People team to their internal customers, all 20,000 of them. The challenge was to create an authentic product that would become a catalyst for the design of new services. There was also dissatisfaction with the status quo with Manager B complaining that the client's iterative approach to the development of services led to more of the same thing.

Attitude

Our response to the problem was to suggest the staff handbook be reimagined as a travel guidebook, one that would suggest a series of journeys through the organisation as well as offering guidance as to how those journeys might be best enjoyed. These suggestions led to a proposal by us to the client that they make a large three-dimensional map constructed of physical representations of those very journeys. Rather than draft a lengthy proposal we gave the client a prototype model we had made using artefacts created in the earlier initial workshop (see Figure 5).

We told the client that our intention was to intervene in the established processes used by the organisation, in order to provoke debate and open minds to different ways of thinking and acting. We also told them that the outcome was unknown. The client's response to this pitch was a mixture of intrigue and frustration. We were told that senior management would not commission a project with entirely unknown outcomes and that for the purpose of their internal audience they would describe the project as simply "drafting a new staff handbook".

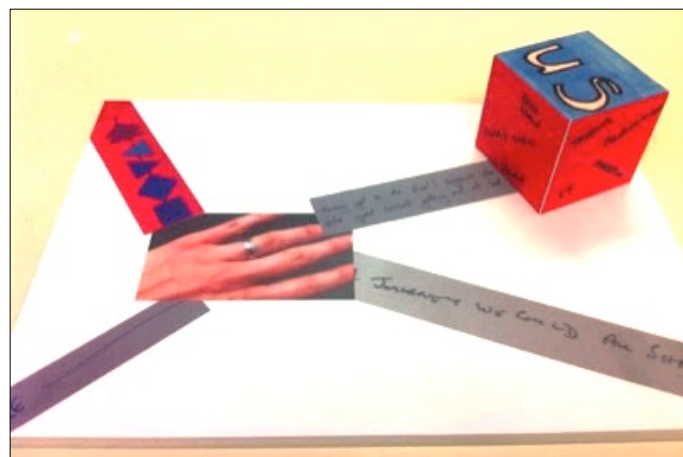


Figure 5. Prototype for a map-making intervention

Our reflections upon this early part of the case study were that as well as encouraging interaction with artefacts we were being intentionally provocative. This intention is identified by Galli (2014) as being a key feature in a "disruptive attitude" in designers and suggests it could take the form of corrupting the orientation of the project and of consciously steering the project towards a particular view. We suggest that this intention to provoke is important because it is the common ground shared by disruptive design and design activism.

Process

In the case study we told the client that we would instigate a three-stage process of *disrupt*, *understand* and *utilise*. The first stage, *disrupt*, was through the facilitation of a one day workshop where the participants were given a series of prompts to make artefacts from a variety of craft materials. These artefacts included buildings, vehicles, roads, people and stories and were used to populate the map (see Figure 3).

The second stage, *understand*, was simply a suggestion to the client that they would have to make sense of the map possibly by displaying some of the artefacts in their offices. The third stage, *utilise*, was equally vague with the suggestion that the client should interpret the map when creating the new staff resource.



Figure 6. Artefacts made in the map-making workshop

On reflection we admit that our intended involvement consisted only of *provoke* and *make*. *provoke*, through the large but empty map we had made and the series of prompts we would deliver; and *make*, by inviting the participants to respond to the provocation by making artefacts. The other stages were simply blank spaces we had left for the client to explore. This approach was intentionally vague, incomplete and open ended.

Methods

A number of design methods were used during the map-making workshop that formed part of the case study. These all involved making artefacts, using craft materials, of different aspects of their collective organisational identity. The artefacts included text, sketches, painting and making three-dimensional models. In each case the participants were presented with a visual prompt, were given some contextual information by the facilitators, such as a reference to a relevant designer or artist, and were then asked to make an artefact in a prescribed period of time. Examples of these artefacts are shown in Figure 6.

Prior to the workshop we designed a small notebook that was given to each of the twelve participants one week before the workshop took place. The notebooks contained a series of informal prompts that related to possible journeys through the client organisation. The prompts took the form of a series of sentences, such as “when I leave I hope people remember me as ...” The participants were instructed to complete the notebooks and bring them to the workshop. This was the only information given to them prior to the

workshop. The notebooks resulted from our concerns that the initial act of making a mark on the map, which measured 15 square meters, would be daunting for the participants and would cause them to be inhibited. At the workshop we asked each of the participants to choose one piece of information from their own notebook and write it in a continuous line upon the map. We suggested that these marks were not particularly important but would form part of the background information of the map, in the way that actual map information such as contour lines does. There was initial reluctance from the participants until one by one they approached the map and began to write (Figure 7). The participants then realised that they would need to work on their hands and knees, which resulted in several humorous conversations between them as they made way for each other.



Figure 7. Participants making marks on the map using content from their notebooks

The workshop concluded with a short period (less than 10 minutes) of reflection upon the map and the artefacts that had been made and added to it. This period of reflection was unstructured and informal.

We do not suggest that there is anything novel in the methods used in this workshop or indeed in our wider practice. These methods are commonplace in service design practice and research, with the importance of visualisation (Segelstrom, 2009) and prototyping (Holmlid & Evenson, 2007) widely recognised as core activities. We are not attached to a single method and, in common with Celaschi's suggestion (Celaschi et al., 2013), prefer to experiment. However a common theme in our practice of disruptive design is making simple artefacts from craft materials or, as we have referred to above, a material incursion.

Outcomes

The outcomes of the disruptive design intervention that featured in the case study were wide-ranging and complex. These were recorded using first hand observation, video, surveys and interviews. We sought to record and understand people's thoughts, discourse and actions during and following the disruptive design intervention. We also sought to record and understand the artefacts that were made.

In terms of achieving the client's goals, a new staff resource was created by Manager B. This was created in paper and digital form and included text and images that were identified as having originated from artefacts on the map. When asked about its *authenticity*, Manager B told us "it's definitely more about what people think about being

at [the organisation] ... it doesn't feel like its just things the management want to say.” This new staff resource could be viewed simply as a product whilst the service element - the delivery and use of the staff resource - continues to be developed by the client and will not be utilised until Spring 2016. We intend to evaluate the client's design of the entire service element through further interviews as part of our wider study.

In addition to the design of the new staff resource we suggest that taking a disruptive design approach caused a number of other outcomes, unforeseen by the client.

Following the map-making workshop Manager B invited us to install the map, complete with artefacts on the top floor of the client's head office. Manager B wanted other employees to make further artefacts and add them to the map. A co-design process followed between us and Manager B during which a number of issues were dealt with including providing context for what had already been made, providing a similar experience to the new participants, how Manager B would facilitate these further making workshops, how information could be extracted from the map and how data could be recorded.

The workshops went ahead, facilitated by Manager B and other managers who had attended the original map-making workshop, and in total a further 65 people from across the organisation took part over three months. We subsequently interviewed Managers C and D, both of whom had been participants and then acted as facilitators for their own teams. In both cases we discovered that as well as acting as facilitators in relation to the map-making project they had gone on to use similar techniques for unconnected activities relating to their own roles within the organisation.



Figure 8. Artefacts from a manager's self initiated workshop

Manager C worked in a department responsible for delivering learning and development across the organisation. She told us that in a recent project she had used a model making activity similar to the map-making workshop to get a team of people to explore what the culture of a new team being created might look like. She had asked them to think about a journey and any blockages they might encounter. An example of some of the artefacts made is shown at Figure 8 above. When we asked Manager C why she had taken this

approach she told us that she had “loved” the map-making workshop and felt that she had “a lot of freedom” to do what she wanted and so was able to do this.

Manager D worked in a regulatory role. He told us that, like Manager C, he had used a model making activity similar to the map-making workshop in a development meeting with his team. He told us how he had combined the model making with approaches he used regularly such as “reverse brainstorming.” When we asked him why he had taken this approach he told us that he was one of a group of “mavericks” within the business and that he “could identify with the disruptive design principles.”

Findings

We have made a number of findings in relation to the potential impact of disruptive design. Insofar as these findings relate to the examples of practice given here, they are the development of design knowledge, the emergence of active designers and the potential value of unfinished artefacts.

Design knowledge

An early observation in the case study was that people participating in the interventions appeared to be learning from making. This proposition suggested to us that people might be learning through receiving instruction, experiencing the act of making and from reflecting upon the artefacts they had made. This conclusion is supported by Cross’s model for design knowledge (Cross, 1999), in particular his suggestion of “a designerly way of knowing” residing in people, processes and products. In our case we have interpreted *products* as being the artefacts made.

We applied Cross’ suggestion that this design knowledge or ability can be positively developed both by taking part in design activity and by receiving instruction in it to the case study and observed those types of activities taking place. We then used a survey at the end of each workshop to ask a range of questions designed to indicate whether people had developed design knowledge as a result of the activities. One of the questions asked people if those activities had made them “more confident about making things” on a scale of 1 to 10 (negative to positive) as an indicator of design knowledge being developed. Of the 12 participants from the original map-making workshop 11 gave a positive response (in the range of 6-10). However, when we asked the same question to the 65 participants in the workshops run by the client itself almost half of them (29 people) gave a negative response (in the range of 1-5). We subsequently found, through interviewing the participants, that these differences in people’s perception of design knowledge being gained were due to the different amounts of time spent taking part in the activity (6 hours in the original map-making workshop compared to less than 1 hour in the later workshops) and, to a lesser extent, our absence from the later workshops.

Accordingly we suggest that the participants in the initial map-making workshop, which included Managers B, C and D, may have developed design knowledge. These initial findings will be evaluated further through interviews with the participants as part of a wider on-going study.

Emergence of active designers

Managers B, C and D were all independently, and without direction from the

organisation, carrying out covert forms of design activity. None of them had a formal design education, their job descriptions did not include the word “design” and the activities they engaged in were not labelled by them or the wider organisation as “design”. Accordingly we adopt Gorb and Dumas’ argument (Gorb & Dumas, 1987) that they were practising a form of “silent design”. The types of design activity they were practising were arguably within the “new roles” for designers described by Yee et al (2014). In particular, we suggest that Manager B fits the role of storyteller identified by Myerson (2007) whilst Managers B, C and D all displayed aspects of the roles of facilitator and co-creator identified by Inns (2007).

Unfinished processes

Insofar as our disruptive design approach can be viewed as a process it is an unfinished process. In limiting our interventions to *provoke* and *make* we are intentionally providing only part of, or the beginning of a design process. In seeking to understand why this approach might motivate people to go on and complete the process for themselves, by thinking and acting, and sometimes by making more artefacts, we suggest that it is helpful to consider our provocations as a series of artefacts that we had designed. In the case study the artefacts that served to *provoke* included a large blank map, as shown in Figure 7, and a series of visual prompts, consisting of words and images including “buildings”, “journeys” and “walking.”

We have suggested above that viewed as a process *provoke* and then *make* are vague, incomplete, open ended and unfinished. We would also suggest that viewed as collections of artefacts the same descriptions apply and that they are all elements of ambiguity as described by Gaver et al (2003). Gaver deals directly with the issue of peoples’ motivation to think and act when noting that “ambiguity of information impels people to question for themselves the truth of the situation.” Gaver also suggests that “by thwarting easy interpretation, ambiguous situations require people to participate in making meaning.” Accordingly we suggest that our unfinished approach, or process, may be what compels participants to engage in further design activity.

Unfinished objects

We have found that artefacts made by participants as part of a disruptive design approach, such as those pictured in Figures 4, 6 and 8 above, often have an unfinished quality which we attribute to them being made quickly from basic craft materials whilst at the same time seeking to challenge serious personal and/or organisational issues. Julier (2009) has noted a similar trend by design activists to create unfinished objects. When Julier put this to a group of sociologists Celia Lury suggested that unfinished objects should be understood as “an open-ended series or system” and that there may be value in “how an object might become, how it might evolve, how and with what (as well as who) it might connect, interact and so on.”

We suggest that the unfinished quality of the artefacts is a further provocation – separate from the provocations caused directly by the disruptive designer and often continuing long after the designer has departed. Indeed Flood et al (2014) have recognised this provocative quality by characterising design activism artefacts as “disobedient objects.” This is supported in a wider design context and indeed Boland et al (2008) note how the architect Frank Gehry uses the technique of making his early designs “purposefully crude and unfinished” and suggests that these unfinished models were “tools for thinking” rather than the “finished design.”

A further example from the case study that supports this suggestion of unfinished artefacts as a source of provocation can be found in Manager B's actions. During one of the co-design meetings regarding the further map-making workshops at the client's head office we asked Manager B how she was going to approach writing up the information that came out of these further workshops. Manager B's response was to say: "I will be moving my desk up here when the time comes to write [the artefacts] up ... I think I need to be near the map so that I can understand it, keep going back to it."

Conclusions and future work

We have sought to describe the practice of disruptive design in terms of attitude, process, methods and outcomes and to give relevant examples taken from a case study involving the design of services. At the heart of what we have described is an intention to disrupt people and their organisations through provocation and encouraging the making of artefacts. We suggest that these stages of *provoke* and *make* are catalysts for further activity in the form of *thoughts* and *actions* and that this suggestion is supported by the outcomes and findings we have described.

Whilst the aims of our approach and the practices undertaken in the case study may be familiar to service design practitioners and researchers, we suggest that adopting a disruptive design approach may offer a different perspective to compliment existing service design methodologies. The opportunities this may offer can be summarised as:

- » The methods required, of making simple artefacts from craft materials, are familiar and accessible for designers already practising service design.
- » The emphasis on making artefacts may lead to the emergence of active designers within organisations.
- » The artefacts, in the form of the provocations and the artefacts made are often unfinished and ambiguous and as such may act as a catalyst for self initiated design activity by the participants and their wider organisations.
- » The outcomes are not entirely goal orientated and are likely to be unknown at the beginning and multiple at the end.

In terms of future work we intend to develop a framework for disruptive design practice, providing more detailed examples from case studies that will allow practitioners to use and evaluate our approach.

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Service design tools to explore financial services for poor microbusiness owners

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Abstract

This paper presents a *case* study where a research team applied service design tools through the design process of new financial services for the poor. Service design tools were applied to immerse the research team into the reality of small business owners, which were also microcredit customers, living in poor neighborhoods of Northeast Brazil. Such tools were helpful not only to enforce a user-centered approach for the project but also to understand the stakeholder's expectations and aims. Design activities consisted of contextual interviews with small business owners and research team interaction and ideation, including: fieldwork debriefing with pictures; journey maps; personas; scenarios; service design blueprint; wireframes and mockups. We present lessons learned from the application of this user-centered design process supported by service design tools.

KEYWORDS: service design tools, design process, field research, collaborative teamwork, financial services

Introduction

Financial transactions are fundamentally embedded in a multi-person context and involve the coordinated action of multiple actors. For example, basic payment systems involve a buyer and a seller. The transaction, however, is completed within the context of a financial system that includes organizations (e.g., banks, governments) and the coordination of a rich network of other groups (e.g., competitors, suppliers, transportation providers).

Understanding awareness of this larger context is required for project teams involved to design new service innovations that are expected to be readily adopted and provide benefits to the greater financial ecosystems. The first step into this journey, from a Design Research perspective is to explore the context by understanding final users. Insights gathered from

contextual interviews and observation studies are the initial resource for the project time to innovate in this area. A series of team workshops were used to make the discoveries available these are valuable to further understand the common force and boundaries of service innovation.

Inviting Small Business Owners (SBO's) to a new setting to be interviewed might influence the way they are going to answer some of the contextual questions, this would avoid the research team to do their observations. In their natural environment, fieldwork participants can show and exemplify what they tell us in their establishments. Additionally, bringing the whole research team to do fieldwork might be uncomfortable for the participant. In those situations, design researchers bring field evidence to project teams in a form of: audio files, pictures, field notes, and drawings – to illustrate and give a sense of reality into project discussions. Integrate design research findings and immerse project teams (developers and project managers) into the project context is a valuable design skill. (Edvardsson, 2000; Hawkins, 2015). For this reason, several design activities are valuable to explore findings and assist the team in the first stages of the project. Sarmento & Patricio (2014) presented the results of a study that consisted of three iterative service design cycles that enabled "customer experience" awareness for the development team. Their goal was to comprehend customer experience factors from qualitative studies to optimize service offers. In our study, we also follow a Design Research methodology and illustrate our experience applying service design tools to synchronize project team and design new financial applications for small business owners.

The aim of the fieldwork, the initial resource for this project, was to have a better understanding of formal microcredit services. On the other hand, informal microcredit practices identified in the fieldwork were a richer resource for the project team to have new ideas for future financial services and applications.

This paper reports the design process of a financial app created to support informal credit practices of Small business owners (SBO) identified during the fieldwork. It shows the value of design tools to understand user context by data collected in the field. We aim to address those research questions:

- Which service design tools should be used to transfer knowledge acquired in the field to project team members?
- Which service design tools should be used to apply transferred knowledge from fieldwork activities to create new financial services and applications?

The contribution of this paper is twofold: it first describes design tools to promote common ground understanding of what was learned in the field, and secondly shows how the team moved forward using design tools to create a new financial application for small business owners.

Context: Microcredit Services based on Solidarity Groups

In order to better understand the credit practices of the SBO, we interviewed participants in a microfinance program with a bank in the northeast of Brazil. Solidary groups are groups based on shared moral obligations as well as shared interests. (Tsai, 2007). Yumus Muhammad introduced this concept to microfinance in the 70's with the Grameen Bank in Bangladesh "Group membership not only create support and protection but also smooth

out the erratic behavior patterns of individual members, making each borrower more reliable in the process. Subtle and at times not-so-subtle peer pressure keeps each group member in line with the broader objectives of the credit program. Because the group approves the loan request of each member, the group assumes moral responsibility for the loan. If any member of the group gets into trouble, the group usually comes forward to help.”(Muhammad, 1999). Microfinance institutions use solidarity groups as a base to provide alternative loan security allowing people with few or no assets to have access to micro credit and raise themselves out of poverty (Yang, 2013).

In our research context, the first step to become a member of a solidarity group is to be accepted by a SBO’s group, and then be evaluated by a bank agent. The groups are small from 3 to 10 members and they should know each other. Family members are accepted if they are not involved in the same business or living in the same house. The group is self-regulating and collectively responsible for the loan, i.e., every member is a guarantor for the rest of the group and the group coordinator is responsible for collecting the payment of all individual loans. The loans are granted individually based on a separate credit analysis (per client) and the amount may vary according to the client’s capacity to repay. The repayment term is fixed for the entire group. They renew the loan with the group and the bank, every 4-6 months. In our study, merchants have renewed the loan more than three times. One in particular, did 48 renewals since she started the program. There are two ways to become a member of a solidarity group: by bank agent invitation or by a request form from a friend or acquaintance. A requirement for a current member to invite a new member is based on the morality standards observed in everyday life. Groups have a leader, called a coordinator, who receives the credit instalments and pays into the bank. In our study, six in twelve participants were coordinators of groups. Only one person, the group coordinator, makes the payment. If someone does not have their instalment payment that month, the other members have to pay it for him/her. Group coordinators have a status in the group, and also in the society. People see them as trustful people. The group members choose coordinators. They keep the group together and have a more frequent communication with the bank agent. They are the ones who motivate others to pay. There is some variability in the amount of social interaction among the solidarity group members. Usually, members only meet at the loan renewal meetings. On the other hand, some members live nearby and sometimes meet informally. In other groups they have a more friendly relationship and a sense of responsibility for each other.

Design process

In this project, design process was supported by fieldwork findings that generated insights into new financial technologies for small business owners. A set of design tools was chosen to conduct project discussions, into the first stages of Design Research. Design Research - also referred to as the design experiments approach - was developed as a way to carry out formative research to test and refine designs based on theoretical principles derived from prior research. In general design research, authors agree that the design research process consists of three main stages: Preliminary Research, Prototyping phase and Assessment phase (Plomp, 2007). Reeves (2006) and Nieveen (2006) add one more stage: reflection and documentation. In this study, we concentrated our efforts into Preliminary research and Prototyping. In the Preliminary research phase, the main design activities were fieldwork and co-worker workshops. The aim of this stage was to promote the teams common understanding of what two researchers learned in the fieldwork activities. In the Prototyping

phase, as a team, we envisioned scenarios and storyboards to create the first mock-ups and interface design screens for a financial app. In this second phase, insights and new ideas about services and applications based on the preliminary research stage were becoming tangible through the use of service design tools.

The project team was composed of people from diverse backgrounds: Design Research Visual Design, Computer Science, Social Computing, Project management and Human-computer Interaction. Five of these project team members are researchers in an Innovation lab in Brazil and one is an intern that participated in the process. The purpose of this six-member team was to look for innovations within the microfinance landscape. The design activities were lead by the researcher with a background in Design Research, which is also the first author of this paper.

Preliminary research

In September 2014, two researchers spent a week semi-immersed in the everyday life of microcredit customers and bank agents from the northeast of Brazil. The main purpose of the field study was to understand microfinance practices from the eyes of their participants and look for new ideas and strategies for innovate in financial services. We conducted 20 semi-structured interviews and work observations in two cities. The first city was Fortaleza, a capital city and an urban environment. The second was Icapuí city, located in the semi-arid region on the Northeast seafloor. Contextual interviews were undertaken with 12 small business owners (entrepreneurs) and 8 bank agents from a Microfinance Institution (MFI). Participants were recruited by the MFI. Overall, data collected comprised of 25 hours of recorded audio files, 315 pictures and field notes.

The researchers asked the SBOs, about their financial activity (e.g., what were their low and high expenses, how did they track expenses and generally how did they manage cash flow); financial instruments (what tools did they use to track income and expenses, how did they monitor, bank accounts, and what kinds of technology was used); financial planning (how did they think about the financial future and priorities); savings; payment methods (e.g., credit and debit cards, cash, bank check). Those categories were inspired by previous research (Vines et al., 2012; Kaye et al., 2014; Chipchase et al., 2014). We decided to add two more categories: microfinance experience and financial logistics. The first was to elicit details about the process of obtaining credit from the MFI and the role of solidarity groups, which was a primary focus in this study. The second was added to understand how the money flows between the MFI and small business owners.

Bank agents' questions were structured to understand their work practice (the specific MFI goals and approach, work tasks and activities, technology use); financial education (instructions and advice given to clients); communication tools (information system usage and mobile phone usage); loan management (cashflow maintenance); new client prospecting, and logistical details of the microcredit activities.

Data transformation was applied in order to count the frequency of categories that emerged in the data. (Creswell, 2009). A set of 52 categories was created to organize the data collected. These categories were used to drive the interpretation and findings presented below. NVivo software was used to analyze the qualitative data - transcriptions of audio files and important notes taken during the fieldwork. The overall findings, mainly from the field

notes were the main resource to share knowledge acquired with the project team back home in the first weeks.

All the small business owners (SBOs) were members of a credit solidarity group. Most of them were living in marginalized neighborhoods in the Northeast lacking basic sanitation. The average value of their loan was R\$ 4.000, 00 (about US\$ 1,000.00). They own a variety of businesses, including small grocery stores, restaurants, and clothing stores. A majority of the SBOs were female (9 of 12) and the average age was 45. Family education was one of their main priorities; all the SBOs who had children had their children at school. Some of the SBOs had two jobs, their business and a formal job to support the family. The participants in our study had mobile phones and some of them computers. Surprisingly, most of them have Internet connection on their mobile phones and computers, even though some of them lack of basic sanitation in their houses. Only three participants did not use Internet services.

Generally bank agents were well educated, younger and highly motivated. Five of eight were currently enrolled in university programs. All of the agents we interviewed have been working with the MFI for more than 2 years. The bank agent was the primary bank contact within the community. They provide financial education and advice, answer questions, and look for new microfinance members. Each agent is responsible for one or two geographic areas and works with about 1.000 SBOs. The agents are aware of most of the businesses in their area and have a good relationship with the microfinance members. The coordinator of each group is the main communication channel with bank agents. Bank agents contact their customers by phone, visit them when necessary and participate of microcredit renew meetings. As they work with customers from the same neighborhood it is easier to keep a good relationship with bank customers, since they are frequently visiting customers that are neighbors. This relationship is based on power, respect and integrity. Bank agents build a trusting relationship with their clients. The community is the main source of information for the bank agents to recruit new customers and knowing if current customers are using the credit for growing their business.

The following four sessions describe service design tools to promote team common ground understanding of the field. For each tool, a description of the process, advantages and drawbacks of applying the tool, and information extracted from fieldwork resources that contributed to the project are highlighted.

Unpacking field study with pictures

With such rich resources collected from field research, and several hours ahead to analyze all the data collected, we decided initially to apply design tools to share our findings with the project team. The debriefing started with a 2 hours meeting showing pictures of the field. Field researchers (a design-researcher and a computer scientist) highlighted their experience by chosen pictures taken from the field. Stories were told giving life to the places shown on the pictures (Figure 1)

Teammates asked questions about loan workflow and the role of the bank agent in the process. The process of transferring information to the team in this phase was not a linear process; questions were made related to any phase of the field research, consequently some team members get a little confused resulting in extra time for explanations. Therefore, a more linear explanation was needed for overall understanding. On the other hand, time anxiety was decreased, since they did not have to wait until the data analysis was ready.

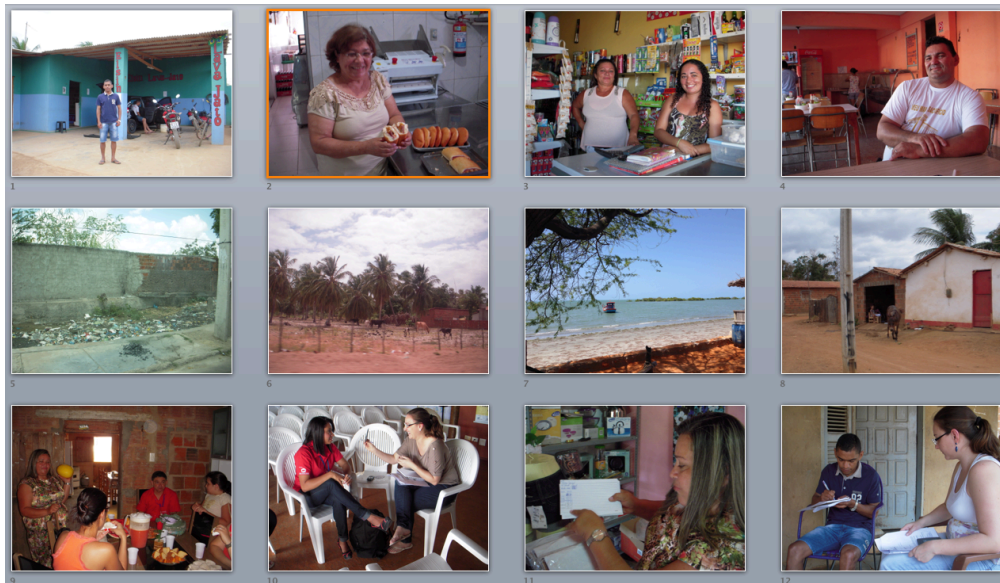


Figure 1 Field pictures shown to team members that did not have the opportunity to go to the field. From left to right, in the first line some pictures of SBOs in their establishments are shown, i.e. car wash, snack bar, mini-market and restaurant. The second line gives a variety of contexts and landscapes we visited, i.e. grocery store across the trash dump, semi-arid area, beach area and a rural area. The third line highlights interviews moments, i.e. SBO's house interior, interviews with bank agent, SBO's paper payment tracking and participant signing the consent form.

Journey map

A journey map helps teams identify the touch points where users interact with a service (Stickdorn & Schneider, 2011). Our Journey map information was extracted from recorded audio files from the user research. In this stage the data was already analyzed and more insights could be given to the team. In a workshop, the project team observed the illustrated Journey map and some pictures of SBO's on the wall. Every person received a set of colored post-its to use during the session. Project members looked for opportunities to innovate the microcredit service (green post-its), points for further research (yellow post-its), and identified drawbacks in the service process (pink post-its). We found 15 service innovation opportunities. The team considered the drawback issues a starting point for generating new ideas based on social practices of SBO's and bank agents. (Figure2).

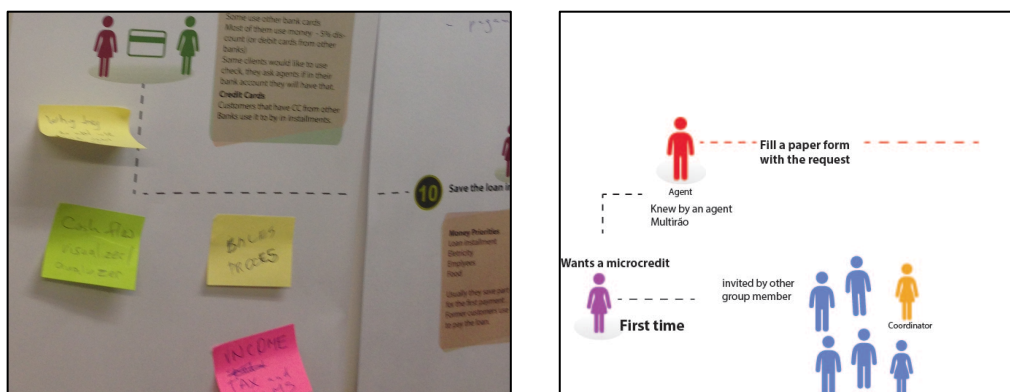


Figure 2 Journey map workshop

The weakness of this design activity was the restriction of considering only SBO's point of view and not the whole ecosystem of the microcredit loan practice. For this reason, the next two steps consisted of creating a Service blueprint and a Stakeholder map. Fieldwork source materials informed the first activity. The second one was created in a collaborative process.

Service Blueprint

A service blueprint was necessary to illustrate the in depth microcredit service, considering the user journeys, the touch points and the backstage processes (Polaine et al., 2013). The invisible line (the backstage process) in the service blueprint helped the team to see hidden meanings and behaviors that will not be visible, only looking at formal documentation (MFI website and brochures). The service blueprint served as a base for us to think how the opportunities raised in the last activity (journey map workshop) could fit in the microcredit ecosystem.

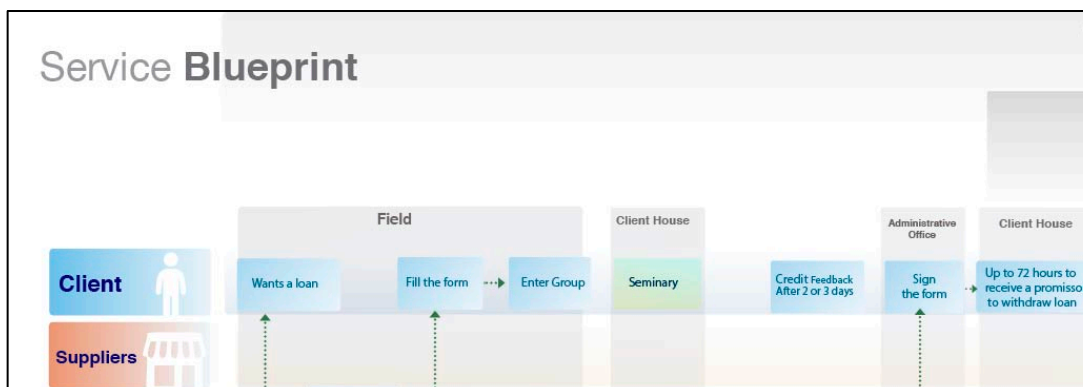


Figure 3 Service Blueprint for Microfinance service studied

In this phase, the team identified SBO's need to deal with everyday obstacles that prevent them to grow their business faster. Discussing each phase in the service blueprint we identified the role of the bank agent as essential in the loan process. In order to scale up the loan process the option of replacing the bank agents would not be a clever solution, since the community trusts in them and see them frequently when they are operating in the area. The team started the discussion of informal practices using the steps of the Service Blueprint.

It is clear the microcredit loan helped SBO to grow, although some social practices affect their business growth everyday. Attention was given to informal social practices identified

during the fieldwork – Buy and Sell categories illustrated in the Service Blueprint (see Figure 3). For many small business owners, there is an important subgroup of customers who buy products using informal credit from the merchant through a Brazilian form of lending called “Fiado.”

Fiado is a credit practice that merchants sell products to a customer based on trust that the customer will repay the loan in the future. The date for repayment of the loan is variable and informal e.g. “Next week, ”Next month”; “I will pay it later”. Sometimes, SBO’s do not have money back in change in those cases the SBO’s is the one in debt with their customers. SBO’s track loan payments and money back in notebooks, and many times were not easy to find the purchased product, date, value and the name of the customer. This social innovation way of doing informal banking transactions (lending and borrowing) is based on social trust and friendship inspiring us to design a new service design for SBO’s.

We decided, as a team to work on a financial tool that would benefit the SBO’s to manage their business better and also help the stakeholders. The following activity was to make a stakeholder map to identify stakeholder’s expectations of a new financial app.

Final users and stakeholders

While visiting the field, design researchers had informal interviews with MFI microcredit directors and microcredit office employees in the Microfinance Institution. A stakeholder map was created with the project team members to register *official* information collected and share it to project team. This activity helped to refine project aims and identify stakeholder’s expectations. We consider as stakeholders: SBOs, solidary group coordinators, merchant customers, suppliers, MFI, government, social institutions and Industrial lab researchers. (Figure 4).



Figure 4 Stakeholder map (partially illustrated)

We concentrated our efforts into SBOs, social institution managers and social data researchers for the service innovation embodied in the future financial application. For instance, a small business owner could use a financial app to help them to manage their business more efficiently; a social media analyst could model relationship graphs from data gathered from a financial app to have community healthy metrics.

We illustrate here, the approach taken to assist SBO’s to manage their business. In order to make those aims tangible, we create personas (Pruitt& Grudin, 2003; Cooper, 1999) to help in the design process. Maria Socorro Sobral, our persona, was inspired by the fieldwork findings and market/MFI reports. (Figure 5). Presenting personas was fundamental in

helping the team to know more details about our public (SBO's), since *Mario do Socorro* carries real life characteristics and situations that happened or were heard in the fieldwork. This phase implicated directly on the prototype design.

Maria is a SBO proud of her business, her honesty and her social status in her community. In the graphic interface design this “proudness” should be highlighted. Project team also had a better vision of how SBO's use fiado. *Maria only does Fiado for people she knows usually, although she would rather her customers pay by cash.* The project team reflected on ways *Maria* could benefit from Fiado and future cash flow.



Figure 5 Our SBO's persona

Prototyping phase

With a common ground understanding of what the team learned during the Preliminary research, the team turned the fieldwork findings and design insights into artifacts, materializing and making the information collected tangible. Three design activities were undertaken in this stage.

Future scenario

In order to design the navigation flow of the financial app, the team collaboratively created a future scenario of how SBO's would use this app. We started defining SBO's expectations to use the app and the outcome after using the app for the first time (Carroll, 2000; Llitjós 2013). We also identified during the workshop doubts (pink post-its) in the future scenarios and the backend technical issues (green post-its) that were crucial to make the app works. A step-by-step line representing the user flow was discussed and registered with post-its.

The advantage of this activity was the team integration. Designers, managers, social and computer scientists were all in the same room defining details for the first cycle of the financial app. The Scenario definition was to be able to help developers to start their work in

parallel, to design and project manager activities. The disadvantage was that one cycle of this activity does not cover the overall motivation of future users (manage their business better) and neither outcome (grow their business) of future users, so that more cycles were needed. The challenge for the design researcher was not to let the team go deep into technical discussions in this phase. The focus should be on the end-user and future steps he/she has to do to achieve his/her goal.

Illustrated interface wireframes

The next activity was a one-hour workshop. Team members received 6 post-its and were asked to draw the previous scenario screens on 6 post-its (Llitjós, 2013). In participant's words: "So, this is when the magic happens". Since we materialized the fieldwork findings into system features it made clearer the interface design process for the team. For example, at this point the team knew how social practices worked based on community trust; how SBO's took notes of their customer's purchases and which type of payments they were willing to receive. This kind of information was crucial to organize elements into system screens. After project members draw their screens, they presented it to the whole team. Subsequently, the team discussed what were the best screen elements and navigation flow.

Some team members did not feel comfortable sketching, in these situations, it was important to insure that the objective of the exercise was not visual perfection. It was a collaborative wireframe decision. Designers wrote some explanations of the proposed options in order to remember team decisions and to aid design in future user graphic interfaces.

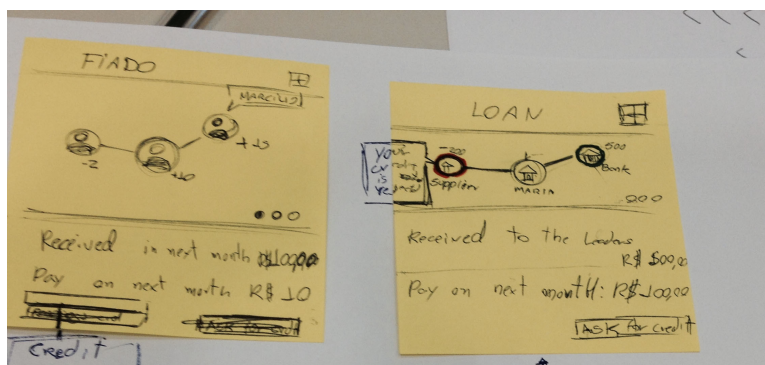


Figure 6 Illustrated Interface wireframes

Service mock-ups

The illustrated wireframes were very useful for designers not only met users expectation but also team expectations. Our observations of the prevalence of informal lending among the SBOs have encouraged us to envision the possibility of new financial management tools for small businesses. As we mentioned before, SBO's usually do not see Fiado as a positive practice; they would prefer to receive the money on the same day rather than an uncertain day of payment. Therefore, our challenge was to design an app that might help SBO's to understand Fiado in a positive way. They did not realize Fiado is a kind of credit that they can take advantage of to use as future cash flow. Additionally, SBO's know their clients

better than banks, and this source of information can be valuable to the bank for evaluating new customers when some of their clients or themselves might ask for a loan.

We designed a new app that may help business owners to manage, plan and predict their financial life. Additionally this app might facilitate their access to small loans. In the first screen (Figure 7a), users are able to see the last customers transactions in their establishment and their status. Customers in blue are in the Fiado status, customers in orange the storeowner has to give change back, customers in green paid for their last purchase. As we expect SBO's value their Fiado loans, we decided not to use red as a colour to show Fiado status, because this colour normally is associated with debt in financial applications.

In the second screen (Figure 7b), the system shows all the last payments and predicts future payments in a calendar view. The system will learn the fuzzy dates of payment from customers and will be able to predict future transactions. The third picture (Figure 7c) shows SBO looking at the best Fiado customers and the value she will receive from them. Storeowners can ask for small loans in the app and have the Fiado as a collateral. The SBO can pay the bank back when she receives the payment from their Fiado customers.

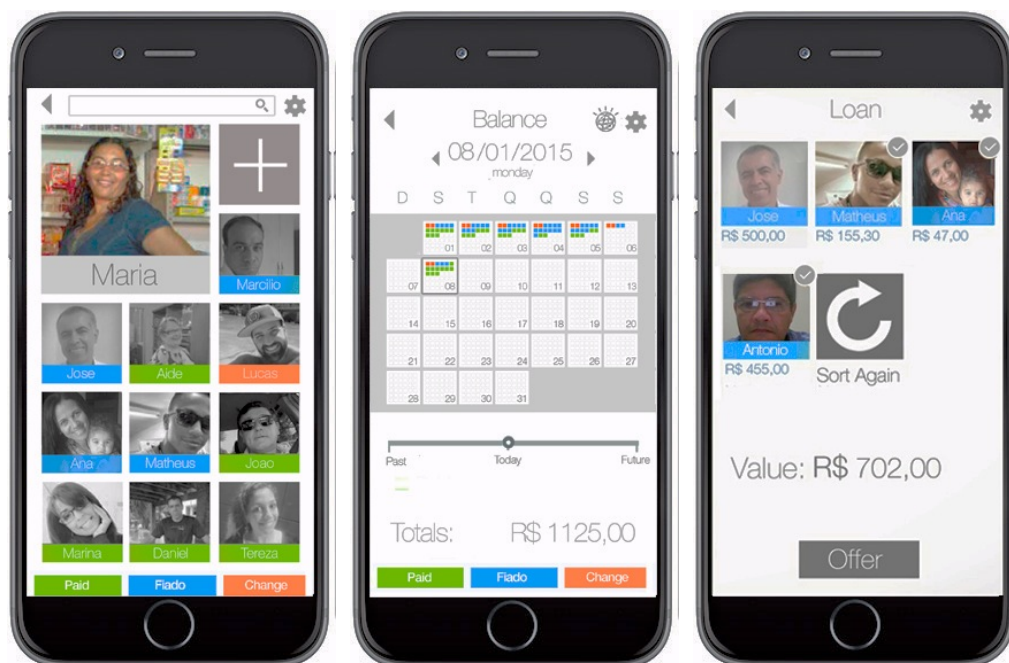


Figure 7(a, b, c) Prototype design

Clearly, additional design work is required and validation of these ideas with Brazilian small business owners is necessary. We will continue with additional exploration of the important work practices and then complete the design and implementation of a new ICT artifact based on the design examples presented above. Finally, we plan to make the app available for field-testing with SBOs in Brazil.

Discussion

We applied eight different design tools to promote team common ground understanding and create a new design app. In the Preliminary stage, The first design activity – Unpacking field studies with pictures is one of our contributions for design researchers, this helped to deal with anxiety shared amongst project colleagues and to discuss situations experienced in the

field. The journey map and blueprint activities were complementary and a rich source for understanding the interactions of players in this context. The stakeholder map and personas helped to prepare the team to envision a new user-centered app considering all the context players. In the prototype phase, a collaborative activity made tangible ideas emerge from previous activities and helped designers to choose visual elements in a more efficient manner.

We believe those methods transferred enough knowledge to the team and helped us to design a new app that is being reviewed with customers and in public forums and conferences (Candello et al., 2015).

Final Remarks

Our design process might help project teams when they are in similar projects and situations. It is very important for designer researchers to improve their ability to share what they learn with potential users and stakeholders of the team. Moreover, project teams should be open to participate of those activities. Collaboration (Hawkins, 2015) and support of project managers is essential for the success of any design process. We hope this design process may inspire other teams to work together and share with designers our project experience.

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Views on Implementation and How They Could Be Used in Service Design

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Abstract

Although service designers have proven their abilities in the fuzzy front end of service development, their skills regarding implementation have been criticised and many service designs are not implemented successfully. So far, there has been little discussion concerning service implementation in service design research and there is potential for further development of this aspect of the design of services. This paper intends to contribute to this development by presenting different views on implementation from fields that are related to service design, such as product and interaction design. These fields mostly see implementation as the delivery of generic resources and process models, whereas service implementation (also) involves development and change of the (service) organisation as well as adaptation in use of resources and service processes models. Still, if discussions on implementation in these related fields are translated to a service context, they can provide inspiration for (future research on) service implementation.

KEYWORDS: implementation of service, organisational change, transformation process, adaptation, service logic

Introduction

In services, there are often no clear boundaries between design, production and consumption (e.g. Sleeswijk Visser, 2013), mostly because services are co-created in use (e.g. Normann and Ramirez, 1993; Vargo and Lusch, 2008; Grönroos, 2006) and because they cannot be fully designed, produced and stored beforehand (Lovelock and Gummesson, 2004). This suggests that services cannot be developed and implemented in the same way as products are. Yet, models of service design consist of similar stages as models for product development (e.g. Stickdorn and Schneider, 2011). Service design agencies show a similar pattern (e.g. DesignThinkers, 2011; Engine, n.d; Live|Work, n.d.). So, in some ways service design seems to have taken on the generic models of a design process, in some cases including implementation as a last (add-on) step. But, if design, production and use take

place simultaneously, maybe design and implementation of services should also be considered simultaneously. Instead, implementation of services could be a mindset (Christianssen, 2015), and considered from the start of the project. These two competing views indicate that service implementation is not clearly defined yet.

In addition to the lack of a clear definition, little is known about how to successfully implement services and few design agencies include implementation as a part of their work or deliverables. Furthermore, Mulgan (2014) stated that service designers have so far failed to apply their creative skills to implementation of services, which may have contributed to the fact that many service solutions remain on the drawing board. These issues are the reason why we look into this topic.

Knowledge regarding implementation of services could come from service marketing, which has been discussing service implementation for several decades (see e.g. Tax and Stuart, 1997 Roth and Menor, 2003). Recently, Yu and Sangiorgi (2014) tapped into this literature and developed a framework that related the development of a service concept to the design of a service and the construction of a service delivery system to the implementation of a service. However, there are also other views on the relationship between implementation and design. This paper looks at how a number of fields that are related to service design, such as product design and marketing, interaction design and organisational change processes, view implementation. These perspectives on implementation can be used as inspiration for a discussion of implementation of well-designed services. When we talk about service implementation in this paper, we mean the process of moving from a well-designed service concept and service delivery process to a situation where delivery of the intended service experience is repeatable and constant.

Fields close to service design seem to share a view of implementation as putting generic resources and process models (that have been developed previously) in use. They are thus discussing the implementation of a single entity rather than a complex system of products, touch-points, scripts, relations, activities, etc. that a service is made up of. Hence, the discussions on implementation in fields related to service design should always be interpreted and translated in order to successfully build on the input from these discussions.

Therefore, this paper includes both an overview and discussion of perspectives of implementation in these neighbouring fields as well as how these views can be related to implementation in service design.

Different themes in implementation

We have identified four themes regarding implementation in fields that are related to service design. These themes were developed from an exploratory literature search, aimed at gathering knowledge regarding (various views on) implementation of outcomes of a design process, rather than making an ultimate compilation of this topic. The perspectives are not meant to be mutually exclusive. Rather, to understand and successfully drive implementation, all these perspectives are required.

Literature searches on implementation of outcomes of design and innovation processes were done in the Scopus and Elsevier databases as well as ACM digital library formed the starting point of this literature search. These three databases were selected because they contain publications from various design research fora, amongst others Design Issues (Scopus),

International Journal of Design (Scopus), Design Studies (Elsevier) and Interaction Design (ACM). The outcome of these initial searches were filtered, to gather those papers that included a discussion on the implementation of outcomes of design processes. These papers were then used as a source for additional literature regarding the implementation of outcomes of design processes.

The four themes that were developed based on the selected papers are: *implementation as part of the development process*, which sees implementation as a part of going from a design (prototype) to a (final) product; *implementation as strategy*, which sees implementation as the delivery of generic resources that are designed and produced in parallel to the process of developing the implementation (strategy); *implementation as design after design*, the stage where the outcome of a design process is adjusted to an organisation and vice versa; and *implementation as change of practices*, a perspective that focuses on implementation of new routines and ways of working. We discuss these themes in more detail below.

Implementation as part of the development process

Both product design and interaction design literature discuss implementation as a part of the development process, albeit in different ways. In interaction design, implementation is seen as the last phase of the development process (Kienzle, 2008), where a system design is transformed into a working (software) product (e.g. Serrano et al., 2008). One aspect is software development, where implementation concerns building the software architecture (e.g. Réquillé-Romanczuk et al., 2003; Laufer et al., 2014) or the use of a programming language to developing the software code (e.g. Bose and Sugumaran, 1999; Sun and Salcic, 2011). Another aspect of implementation is building hardware (e.g. Li et al., 2015; Hazlewood et al., 2010).

In both cases, implementation is an iterative process (see e.g. Vander Zanden and Halterman, 2001; Kim et al., 2007). During this process, the design artefact may change, resulting in a final outcome that differs from the original design. This process is called design drift (Robillard et al., 2014), which is sometimes also considered a part of design erosion (cf. Van Gurp and Bosch, 2002). Drift and erosion are not negative, but rather a consequences of an iterative mindset.

In product design, implementation is also placed at the end of the development process, where it consists of prototype development and product launch (e.g. Dobocan and Blebea 2014; Buijs, 2003; Buijs and Valkenburg, 2005). Product launch includes (ramp up of) production and commercial launch of the product (e.g. Lenfle and Midler, 2009). Companies seem to face challenges in the transition from development to production and launch (Owens, 2007). Liedtka and Ogilvie (2011) discuss learning launches, which are aimed at testing this transition, more specifically the assumptions regarding the (launch of) the product and its on-ramp strategy (how people “learn about the offering, try it out, become users and enlist others”, *ibid.*, p. 174).

Implementation as strategy

The perspective of implementation as a strategy is described elaborately in marketing literature and is considered important, both because the chosen strategy largely determines whether a product is successful or not (e.g. Hultink et al., 1997; Cui et al., 2011) and because it is the most cost-intensive phase of new product development (Cui, 2011). Hultink et al. (1997) defined launch strategies as “those decisions and activities necessary to present a

product to its target market and begin to generate income from sales of the new product” (ibid., p. 245). For a more elaborate discussion of literature on launch strategies see Hultink et al. (1997) and Hsieh and Tsai (2006).

Developing an implementation or launch strategy of a product is often seen as a process that runs parallel to product development (e.g. Buijs and Valkenburg, 2005), where strategic decisions such as what, when, where and why to launch as well as tactical decisions concerning how to launch (Hultink et al, 1997) are taken at different stages of the development process.

Finding the proper launch strategies is considered a key to a successful launch process (Chiu et al., 2006). Studies of launch strategies have identified best practices (e.g. Rossi et al., 2014) and success factors, which suggest a network approach (Bouwman et al, 2010) that focuses not only on the company and the customer, but also on other key stakeholders that are part of the launch (e.g. Di Benedetto, 1999; Owen, 2007). Ideally, these stakeholders are part of the team that plans the implementation of the product (e.g. Kou and Lee, 2015; Smith, 2011).

Regardless of the chosen launch strategy, it should be possible to make changes to the strategy along the way. Since it is impossible to predict how the market will react to the launch of a product, it is important to be able to have a strategy that can be adjusted as soon as there is a first idea of how the designed strategy works out in reality (Cui et al., 2011).

Implementation as design after design

The view of implementation as a (launch) strategy focusses on presenting a product to its target market (Hultink et al., 1997). This perspective neglects the part of implementation that happens when “an individual puts an innovation to use” (Rogers, 2003, p. 20) or when trying to get a technology to work (Fleck, 1994). Similarly, Voss (1988) defined implementation as “the adoption of inventions” (ibid., 55), which starts when an invention has been successfully developed and the first attempt at adoption of the invention is made. More specifically, this can be seen as the process of mutual adaptation of organisation and innovation (Leonard-Barton, 1988; Rogers, 2003), which is argued to consist of agenda setting, matching, redefining, clarifying and routinising (Rogers, 2003). In the first phase, the problem and need are identified, including the search for existing technologies that can be used to fit this need (ibid. p. 422). Next, the match between organisation and technology is planned and designed (ibid., p. 423). The third phase (redefining) consists of the reinvention of the technology in order to fit the organisation’s structure. (ibid. p. 424). When the innovation is then put into use in a larger part of the organisation, “people gradually gain common understanding of the innovation as they talk about it with other people in the organisation” (ibid. p. 428). In the final step, the new technology will be fully institutionalised, meaning that it has lost its *newness* and that it has become integrated in the organisation (ibid.). The reinventions that take place during the *redefining*-phase can be seen as design as well (Park and Chen, 2012), thus becoming design after design (e.g. Shidende and Mörtberg, 2014), co-realisation (Hertzum and Simonsen, 2010) or design-in-use (Ehn, 2008). This draws parallels to open implementation as discussed in interaction design (e.g. Kiczales et al, 1997), where the user can control the components implementation strategy, allowing users to determine the exact functionality of various software components (e.g. Wu et al, 2009; Serrano et al., 2008).

It has been argued by Xp (2002) that this process of “bringing the system to its user” (ibid., p. 204) in software development is often complex. Since then, empirical studies of

implementation of (software) innovations have described this process of adjustment of the organisation to the technology and vice versa (e.g. Hocko, 2011; Park et al., 2015), identifying both causes for failure and success factors.

Implementation as a change of practices

The type of implementation of innovations described in the previous section is closely tied to change management (Greenhalgh et al., 2004), but there are differences between implementation of technology and implementation of more complex process innovation (Voss, 1988). Organisations continuously make incremental changes, with periodical projects or planned processes to deliver changes in the organisation (Aken, 2007). Such programmes usually start with a sense of urgency for change (Kotter, 1995) and are ideally followed by the formation of a competent team to drive the change process (Kotter, 1995; Sirkin et al., 2005). This team forms a shared understanding of the problem as well as a vision for the change (Kotter, 1995), which is then communicated to a larger part of the organisation (Kotter, 1995; Fixen et al., 2005). In turn, the vision is adjusted on the departmental level, allowing employees to act on the vision and define what this means for their work (Beer and Nohria, 2000; Fixen et al., 2005). Training and coaching in this stage can help to create understanding among employees for the “why” and the “what” of their new practice (Fixen et al., 2005, p. 42). Finally, the programme becomes institutionalised, although possibly slightly changed with respect to the initial programme design (Fixen et al., 2005).

This implementation process has also been defined in terms of unfreezing practices, changing them and freezing the new practices (Fixen et al., 2005; Aken, 2007).

Commitment from management is considered important for success (Fixen et al., 2005; Sirkin et al., 2005) but should focus on setting the direction, not to push a strict view of the required change, allowing bottom-up engagement in designing the detailed changes (Beer and Nohria, 2000; Fixen et al., 2005). Additional success factors are regular review of the progress of a project and ensuring that people working with implementation have time for this (Sirkin et al., 2005).

Implementing these changes in practice is mostly an organic process, but certain elements about change can be designed. According to Fixen et al. (2005), every change process has a number of core intervention components; prerequisites that need to be in place in order for implementation to be successful. If the principles of intervention (aim and content) underlying these core components (of intervention) are known, the form of the core intervention components (processes, strategies) can be designed to fit a local site of implementation best. This way, strategies and processes can cater for heterogeneity of characteristics (e.g. organisational structure, communication styles) among different implementation sites (e.g. various branches of one organisation) (ibid., p.25).

What does this mean for services?

From the four perspectives on implementation discussed in this paper it follows that product and interaction design talk about implementation as part of developing generic resources and process models. Product marketing speaks of implementation as setting up the delivery of such artefacts to users as a generic process, which can be reproduced. Both these perspectives relate to implementation as the final stage(s) of the process of designing and selling an artefact, which is a too narrow view in the context of services. The perspective of

implementation as change of practices discusses change and adaptation of an organisation, but literature on this topic seems to focus on changes in the provider sphere, neglecting changes in the customer and joint sphere that might be required for successful implementation.

Instead, implementation of services requires adaptation of generic service resources that are the outcome of a design process (e.g. software systems, coffee cups) in order for (members of) an organisation to be able to work with these resources. Furthermore, service implementation requires the development and adaptation of generic service processes models during the delivery of service (e.g. customise scripts, improvising).

In other words, the generic resources need to be adapted in order to become resources that are available, first in the provider and customer sphere and then in the joint sphere where provider and customer meet (Grönroos and Voima, 2013). Doing this allows, these generic resources to be used for value co-creation as it is conceived in the models of service processes that are the outcome of a service design process. In turn, these service process models have to be adapted in use, in order to be able to improvise during the service process, using the resources that are available in the provider and customer sphere (which might be different from the resources that are defined in the service process models).

To some extent, service design has discussed topics related to development of an organisation and adaptation in use of resources and service process models. For instance, diffusion and repurposing of technology in services (Blomberg and Darrah, 2014) as well as resourcefulness and design while the service is in operation (Holmlid, 2012). Yet, there are topics left to learn about and translate from other fields.

One of these topics is implementation strategies for services. This includes matters such as whether and how the development of such strategies can run parallel to the design of the service, like in product design (e.g. Buijs and Valkenburg, 2005), and what successful implementation strategies for services are. Could the principle of learning launches (Liedtka and Ogilvie, 2011) be translated to the launch of services and would it be possible to use the principle of beta versions, commonly used in interaction design, for services as well? If service implementation is considered an iterative process, aimed at adaptation and improvement of the designed service process models and generic resources, design drift is likely to occur. This drift can point to which aspects of the context in which the service is implemented can be changed and which are unchangeable. Documentation regarding the changeable and unchangeable factors can provide insights that can help in the development of specifications for the design and implementation of current and future services.

Changes in the service process models and generic resources that occur during implementation would likely need to be discussed with other stakeholders in the service delivery (apart from internally, in the service organisation). This requires that stakeholders in service delivery are not only involved in the design of the service concept, but also when developing its implementation strategy and during implementation itself. What ways of involving stakeholders would then be successful, given the nature of service delivery and the often complex relations between stakeholders?

This involvement of the various stakeholders also points to a question of ownership of the implementation. Service designers are criticised for their current lack of skills in the implementation of services (Mulgan, 2014), but is implementation their responsibility, or would it be better if the service organisation takes ownership for this? In the first case, the question is what new skills service designers would need to learn in order to facilitate

successful service implementation. In the latter case the concerns are, for example, how to handle the service design after the design phase, how to safeguard a well-designed service (concept) during implementation and how to transfer ownership of the design to the organisation.

Finally, success factors in the implementation of services as new practices could be investigated. Is it possible to define best practices when it comes to service implementation?

Conclusion

Implementation of services is not yet an integral part of service design, neither in practice nor in service design research. There are initiatives that put more focus on implementation of services (e.g. Sangiorgi and Yu, 2014; Christianssen, 2015), but research concerning implementation in service design is still patchy. This paper aims to contribute to the development of this area by reviewing how implementation is discussed in fields that are close to service design and how these perspectives could be related to implementation of services. Four perspectives on implementation were identified: implementation as part of the development process, implementation as strategy, implementation as design after design and implementation as changes of practices. These perspectives are all equally relevant and should all be understood in order to be able to drive implementation successfully.

Beyond what is discussed in these four perspectives on implementation, implementation of services also requires that generic resources, for example outcomes of interaction or product development processes, are adapted to become available as resources in service processes. In addition, service implementation requires the adaptation of generic service process models, to allow for improvisation with the resources that are available during the service process. Discussions regarding implementation in the fields that we have looked at in this paper do not seem to include these two additional views on implementation. Therefore, discussions regarding implementation in these fields cannot be taken into service design *as-is*, but can be used as inspiration instead.

Acknowledgements

We want to thank Vinnova for funding the research project in which this paper was produced, via the Fordonsstrategisk Forskning och Innovation (FFI) research programme.

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Supporting redesign of C2C services through customer journey mapping

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Abstract

It is challenging for service companies to obtain a detailed overview of their customers' end-to-end service delivery processes. This paper extends previous work on a structured approach for modelling customer journeys to encompass complex, technology-driven service systems. We report on how the approach can support documentation and analysis of service delivery from a customer perspective, and present a case study of a consumer-to-consumer (C2C) service in an eMarket company. The case study involved mapping of the service process as intended by the service provider (planned journey), as well as customer journeys as experienced by users (actual journey). Our results reveal that the approach supported the eMarket company in obtaining a detailed overview of the service process, and in understanding the customers' experiences. Deviations between planned and actual journeys uncovered user issues and gaps in the service delivery, pointing to parts of the journey that were prone for improvements and redesign.

KEYWORDS: visual language, customer journey, touchpoint, case study, CJML

Introduction

eCommerce and consumer-to-consumer (C2C) sales grow rapidly. In the second quarter of 2015, eBay alone had \$4.38 billion in revenue¹, and it is expected that the US, Western Europe, and China will generate over \$800 billion in online sales in 2015². With increased popularity of these types of services comes increased competition among service providers. Users of C2C services tend to easily switch to another C2C platform, taking with them both their merchandise and their social networks (Chen, Zhang, & Yunjie Xu, 2009). Providing superior customer experience and building mutual trust is therefore of major importance for such services (Chen et al., 2009; Mangiaracina, Brugnoli, & Perego, 2009).

To deliver great services, service companies need to cope with several challenges. They need genuine insight into the people who will use their service, insight into the process of interacting with the service, and an understanding of the quality of the end-to-end customer experience. However, companies often have insufficient knowledge about their end-to-end service delivery processes, particularly in silo-organized companies (Polaine, Løvlie, &

¹ <http://www.statista.com/statistics/266189/ebays-quarterly-net-revenue/>

² <https://www.forrester.com/The+eCommerce+Globalization+Playbook+For+2015/-/E-PLA700>

Reason, 2013; Rawson, Duncan, & Jones, 2013). Numerous methods and tools have been developed to support service providers in getting such insight, such as customer journey maps, service blueprint, mobile ethnography, and desktop walkthrough (Stickdorn & Schneider, 2011).

Service blueprints are a commonly used technique for specifying and detailing each individual aspect of service (Stickdorn & Schneider, 2011). While service blueprints comprise both the onstage and backstage service processes, customer journeys only concern the customer's perspective. Customer journey mapping is one of the most used visualization techniques within service design (Segelström, 2013). It describes a service from the customer point of view (Stickdorn & Schneider, 2011), and is helpful for both design and analysis of complex experiences and processes connected to different touchpoints (Mangiaracina et al., 2009). Halvorsrud and Kvale (2009) have pointed out the importance of considering both "planned" and "actual" customer journeys. A planned customer journey reflects the service process that a service provider expects a customer to go through. An actual customer journey is the real journey of a customer and its mapping requires insight into customer data. Although both internal resources and customer data are needed for comprehensive mapping of customer journeys (Goverment, 2007; Halvorsrud, Kvale, & Følstad, in press), case studies involving both planned and actual journeys are rarely reported in the literature (Følstad, Kvale, & Halvorsrud, 2013).

We still lack an in-depth understanding of how service design might benefit from understanding deviations between planned and actual customer journeys. Furthermore, we need visual tools that enable researching complex, technology-driven services governed by a service delivery network (Tax, McCutcheon, & Wilkinson, 2013). This paper extends previous work on modelling customer journeys by visual notations needed to capture interactions in complex technology-driven service systems, and by evaluating this approach in the context of eMarket C2C service.

The next section introduces CJML and the development of the extensions. This is followed by a case study where CJML has been applied for analysis of a recently introduced C2C service in an eMarket company. Particularly, the paper proposes a means for uncovering the gaps between service providers' view on service usage and customers' experiences. Finally, we discuss how this approach can prove valuable in the process of redesigning and improving services.

Extending the Customer Journey Modelling Language (CJML)

CJML is a formal language for modelling and visualizing service delivery in terms of customer journeys. The basic units of CJML are the observable communication events or touchpoints that form the "least common denominator" of the service delivery process. It enables a detailed specification of the service delivery process from the perspective of the customer, and its basic components are described in (Halvorsrud, Lee, Haugstveit, & Følstad, 2014). With its formalized language and notation, CJML contrasts the rich and often anecdotic description format of other customer journey approaches. It is particularly suited for transactional- or technology-based services governed by well-defined tasks connected through a logical sequence, rather than experience-centric or human-intensive services.

The following section presents the new features in the visual notation that was needed to characterize the interaction pattern between multiple actors in a complex service system enabled by a technology-driven platform.

Visual elements of CJML

Touchpoints in CJML³ are defined as instances of communication or interaction between a customer and a service provider, representing communication events in line with the Shannon-Weaver model (1963). The source of communication, referred to as the *initiator* or *sender*, transmits a message through a *channel* to the *receiver*. The channel may be digital (like an e-mail or a SMS) or verbally mediated (like a face-to-face conversation). Touchpoints are represented as circles with the boundary colour carrying information about the initiator, see Figure 1. For the C2C service described in this paper, the two target actors are represented by the colours orange and green, respectively. Touchpoints initiated by the service provider have a blue circumference. Information about the status of a given touchpoint is of special interest in actual journeys. A completed touchpoint is represented by a solid line, while a missing touchpoint has a dashed line. A failing touchpoint is marked with a cross. The symbol inside a touchpoint represents the channel that mediates the communication process.

By virtue of connecting users through a technology-driven platform, a C2C service process contains touchpoint uncertainties, as seen from the service provider's point of view. The lower part of Figure 1 illustrates four types of touchpoint uncertainty and their accompanying visualization formats: 1. uncertainty in the number of touchpoints being exchanged between two actors; 2. uncertainty in the choice of communication channel for a given touchpoint; 3. uncertainty in the occurrence of a touchpoint; or 4. uncertainty in the initiator of a given touchpoint.

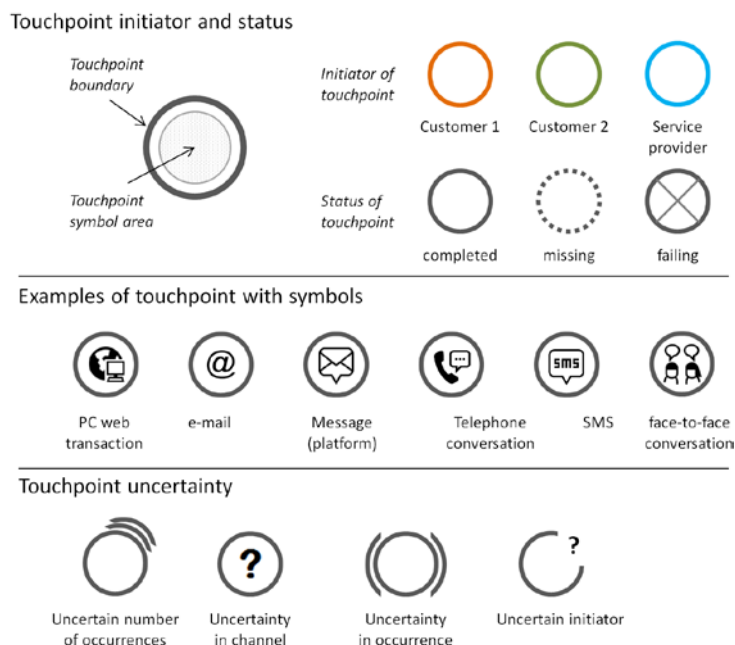


Figure 1 Visual representation of touchpoints.

³ In a recent version of CJML, a touchpoint typology has been developed, distinguishing four classes of basic elements in a customer journey. In this paper we refer to the terminology as it was used during the case study.

Customer journey diagrams

Shostack (1982) introduced a distinction between a service in its *static* state as in a hypothetical representation, and in its *dynamic* state when encountered by a customer. CJML is built on this important distinction, and refers to the two states as the planned and actual customer journey, respectively. The planned customer journey is the hypothetical state of a service process, resulting from the underlying service system. This label is used independent of whether the service process has been deliberately planned or designed, or merely results from an ad-hoc development process. On the other hand, actual customer journeys are representations of the service process in terms of the events that occurred in a real situation with an individual customer.

Two different types of customer journey diagrams have been developed to visualize planned and actual journeys, see Figure 2. A *sequential diagram* simply represents the touchpoints in order of appearance along a horizontal line. The touchpoints are labelled consecutively with a unique identifier and a text description. This diagram is useful for representing planned customer journeys. A planned journey may branch into sub-journeys in the case of multi-channel services (Sousa & Voss, 2006) that for example allows the customer to choose between two alternative channels. This may result in a branching of the planned journey into several alternative paths, corresponding to Shostack's "executorial latitude" (1987). In such cases it is thus necessary to provide the conditions under which the sequential diagram is representative. The sequential diagram can also be used to represent actual journeys. This is useful when the planned journey is governed by unstructured processes or when the planned journey is unknown. The *deviation diagram* is designed to emphasize the gap between the planned and an actual journey. Here, touchpoints that are not part of the planned journey are displaced vertically under the preceding touchpoint for easy comparison. Deviations may represent touchpoints that are missing (e.g. an e-mail that never reached the customer), failing (e.g. a self-service ticket machine out of order), or ad-hoc (e.g. customer contacting the call centre). The deviation diagram allows service providers to identify gaps in their service processes by comparing actual journeys with the planned journey (Halvorsrud et al., 2014). However, deviations from the planned journey do not necessarily imply an unfortunate customer experience.

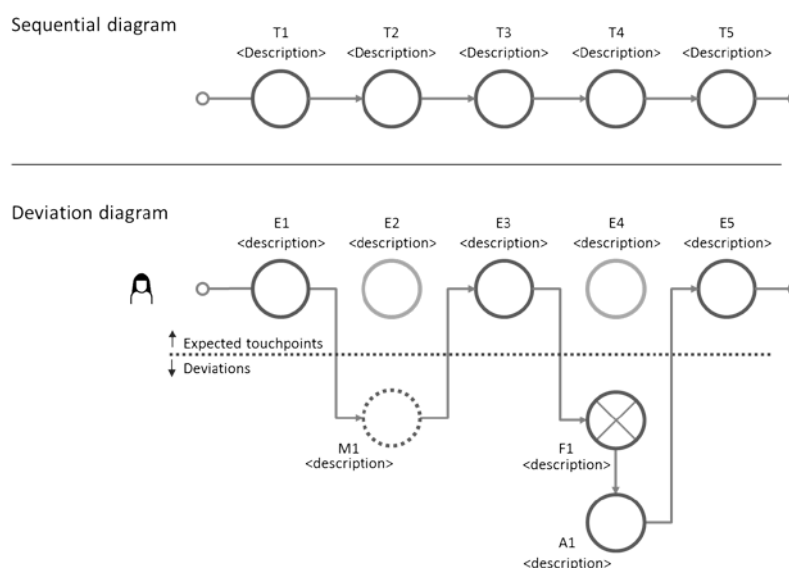


Figure 2 A sequential customer journey diagram for both planned and actual journeys. A deviation diagram reveals the delivery gap for actual journeys.

Touchpoints may be labelled with unique identifiers for easy referral, and a touchpoint description may also be added in the form of a short text. Identifiers for touchpoints of planned journeys are T1, T2, T3, etc. For actual journeys, the first letter of the identifier depends on the status of the touchpoint. We differentiate between the touchpoints that are planned or expected (E), missing (M), failing (F), or ad-hoc (A).

Swimlane diagram

In the case of services involving a network of actors, the service delivery network approach introduced by Tax (2013) is a convenient concept. CJML has been extended with a customer journey swimlane diagram to represent service delivery networks, see Figure 3. Here, each actor has a separate swimlane to better distinguish the message flow through the network. Time extends in the horizontal direction, and each touchpoint is replicated in the swimlanes of the involved actors. The swimlane diagram, with its horizontal paths reserved for each actor, must not be confused with a service blueprint (Bitner, Ostrom, & Morgan, 2008), which encompass back-end systems or support processes that do not intercept any of the actors⁴.

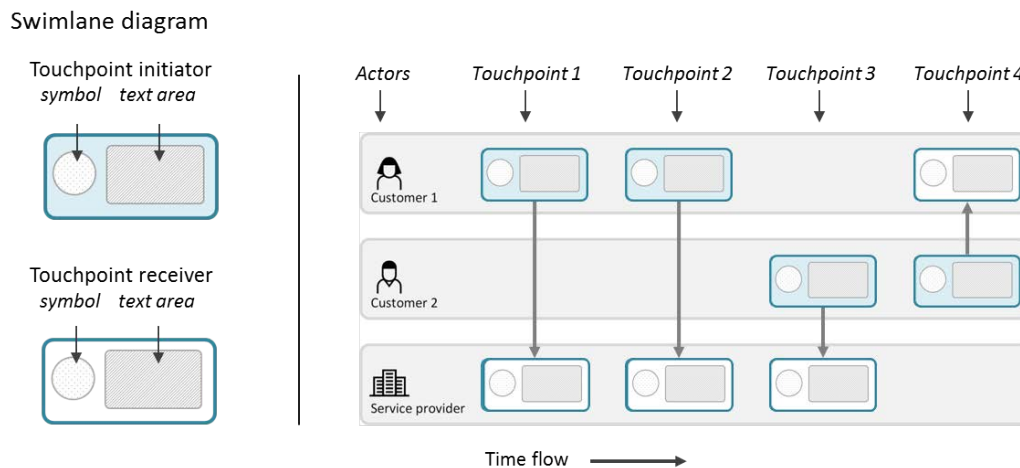


Figure 3 Swimlane diagram for journeys with multiple actors

Customer experience for customer journey diagrams

In CJML, customer experience is conceptualized according to research from the human-computer interaction (HCI) domain; as a subjective, dynamic and context-dependent phenomenon (Law, Roto, Hassenzahl, Vermeeren, & Kort, 2009). Customer experience in CJML is associated with actual journeys only, based on self-reported input from the individual user. Customer experience is visualized for actual journeys as a speech bobble containing the customer's account of a given event. This is achieved through an empirical study of user experience over time, as will be described below. The notation allows free-text input, as well as measurements of the experience, see figure 4.

⁴ There exists a variety of service blueprint formats, see for example <http://www.slideshare.net/apolaine/blueprint-developing-a-tool-for-service-design>

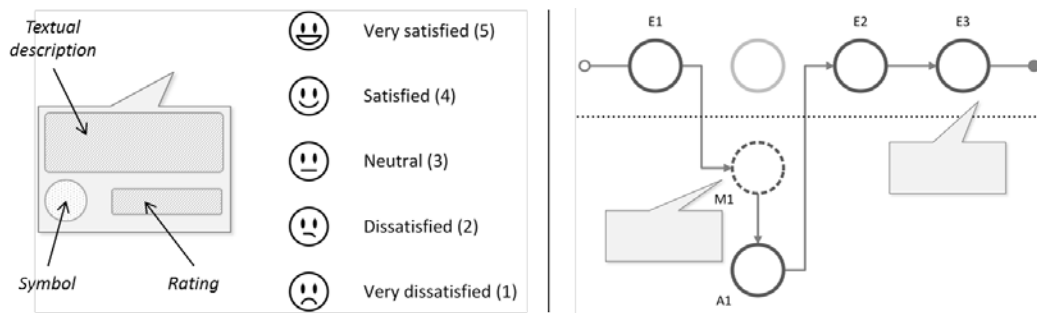


Figure 4 Visualization of customer experience in a deviation diagram

CJML diagrams can be helpful in giving service providers an overview of their planned journeys, and also in mapping actual journeys of real customers, which can lead to detection of weaknesses or errors in the service delivery process. The following section will provide an example of how CJML, in a case study for an eMarket company, was used to map planned and actual journeys for one of their new services.

Case study application of the CJML

The case study was carried out in June to September of 2014 in a Norwegian eMarket company that facilitates a platform where individuals and businesses can exchange products and services. The C2C service is intended for the private market. A person (referred to as Job Advertiser), may advertise for help to complete casual work and connect with potential workers (referred to as Job Performer). Examples of jobs are house cleaning, waste management, painting jobs, and similar. The actors connect through a technology platform, and most of the touchpoints are automated. The service allows the actors to choose from several parallel communication channels, some controlled by the technology platform (e.g. chat system, e-mail system), and others that were out of the service provider's control (e.g. private e-mail address, SMS, phone, face-2-face communication). Each user of the service had to register a user profile, where one could fill in information about oneself, and where reviews from other users would appear.

The aim of the study was to map the service in detail, find areas for improvements, and facilitate increased up-take of the service. The responsible eMarket team wanted to gain knowledge of *what* their customers experienced when using the service, as well as *how* they experienced it. The company was particularly interested in Job Advertisers' experiences.

The case study involved mapping of the planned customer journeys for both Job Advertisers and Job Performers. For the actual journeys, only the Job Advertisers' journeys were analysed. In the following, we describe the methods and approaches used in the case study.

Mapping of planned customer journey

The mapping of the planned customer journey involved two steps. First, the eMarket company provided us with sketches of what the customers were to go through when using their service. From this, we were able to make an initial visualization of the planned customer journeys. Second, to validate the initial model of the planned journeys we applied mystery shopping method. Mystery shopping is a method commonly used to gain specific

information about a service or product. The method has a customer-centred focus, as it solely focuses on the events that can be experienced by the customer (Cook et al., 2002). Two researchers took the roles of Job Advertiser and Job Performer, and completed the complete process twice. The results of the mystery shopping was visualised through the swimlane diagram, providing a holistic view of both Job Advertiser and Job Performers journey in connection to each other and the eMarket Company. Figure 5 shows parts of the swimlane diagram from one of the mystery shopping sessions (the journey is slightly simplified).

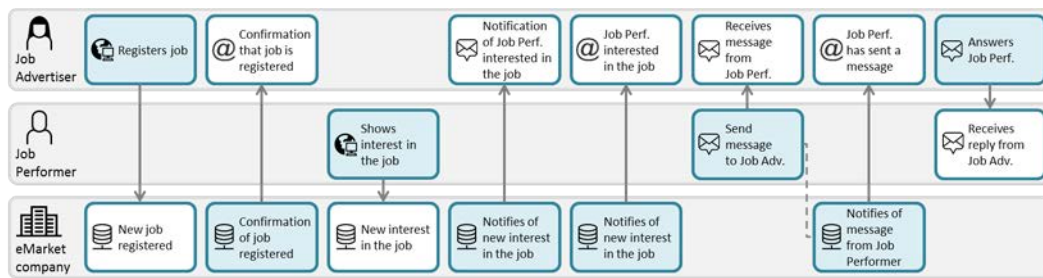


Figure 5 Swimlane diagram from mystery shopping session

The mystery shopping contributed first-hand experience with the service and helped fill in gaps and touchpoints that were missed in the initial sketch of the customer journey provided by the eMarket company. Based on this gained knowledge, we were able to map the planned customer journey for the service. A customer journey diagram was used for this purpose. Figure 6 shows parts of the planned customer journey for Job Advertiser, including the complex set of possible communication channels between Job Advertiser and Job Performer and also notation for uncertainty in channel and number of occurrences. The touchpoints in Figure 6 are the same as the touchpoints shown for Job Advertiser in the swimlane diagram shown in Figure 5.

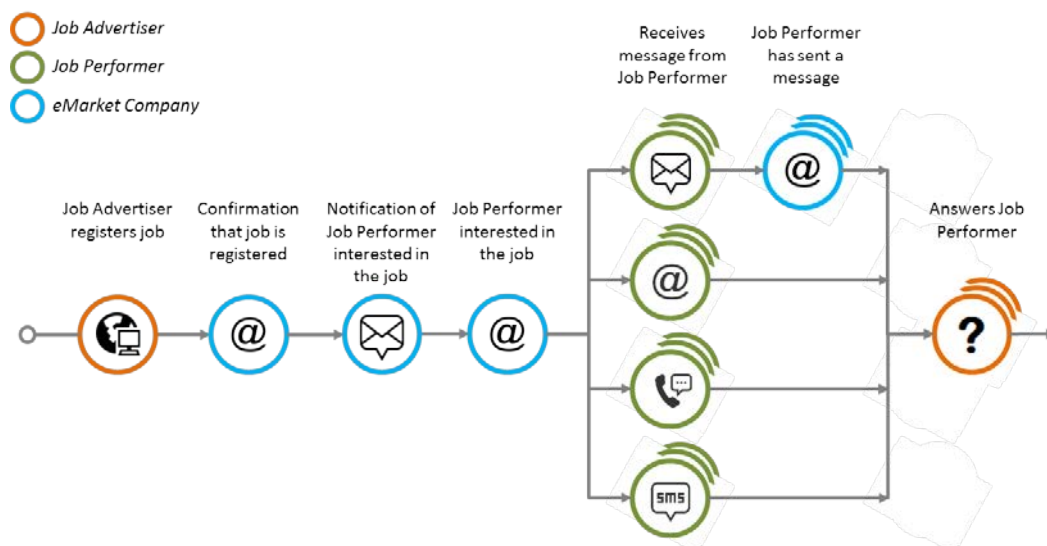


Figure 6 Part of Job Advertiser's planned customer journey

Implications of mapping the planned journey

The mystery shopping revealed several gaps in the initial customer journey model of the eMarket company. The company had not been used to, nor had a specific way, of mapping

customer journeys for the different market places they facilitate. During meetings and by e-mail exchange, the eMarket company reported on the perceived value provided by the planned customer journey models, and the usefulness of having a common language to describe customer journeys. Feedback was gathered right after the study was completed, and also a year later.

The mapping of the planned customer journey gave the eMarket company a holistic overview of the touchpoints involved in their service, and made them aware of the details of their planned customer journey. While some touchpoints were carried out in a well-known way, touchpoint characterised by uncertainty in number of occurrences and mediating channel were harder to keep track of. The visual diagrams enabled the eMarket company to get an initial overview also of these touchpoints that could vary and be carried out differently from one journey to another. Notation for uncertainty is especially relevant for C2C platform service providers. It enables them to describe the service as correctly as possible, given the uncertainties that are inherent in the service process.

The mapping of planned journeys revealed some unnecessary touchpoints and touchpoints that had been misplaced in the initial model. As a result, the company adjusted the service delivery process and eliminated excess touchpoints. Furthermore, the eMarket company has used the customer journey maps as a basis when considering future changes to the service and features for added value. They particularly mention the usefulness of having an overview of what and when information is sent out to the customers, and to use this as a basis for assessing the consequences of reorganising touchpoints and functionality. Also, the eMarket company has found value in using the visualisations when communicating with external companies that intercepted their overall customer journey. The planned journey map has been used when, together with externals, deciding where in the journey external touchpoints shall be placed and what information they shall contain. One employee said:

In meetings with [external company], we have been using the planned customer journey map to uncover where we should include the partner's content and information, and what we should inform our customers about at various stages of the customer journey. The customer journey map makes it much easier to identify what to include where.

Mapping of actual customer journeys

Mapping the actual journeys of Job Advertisers was achieved by recruiting end-users during their initial use of the service. We mapped the journeys of actual customers, and compared and analysed deviations between the actual journeys and the planned journey.

In order to map actual customer journeys, we contacted 65 Job Advertisers that had very recently advertised a job and provided them with information about its purpose of the study and remuneration for participating. Of these, eight people (two males and six females, age 28-52 mean; 36 years) took part in the study. Based on the complexity of the service and usability evaluation recommendations claiming that five is a sufficient number of users for identifying the majority of the most important issues, we assumed that eight users would be adequate. For a more detailed discussion, see Lazar, Feng, & Hochheiser (2010). We sent these participants an electronic documentation form to fill out during their encounters with the service. In the form, participant were asked to document service related interactions that had occurred, the date and time of each interaction, and to give a description of what had happened and how they experienced this. They were also asked to rate their satisfaction with

each interaction on a Likert scale from one to five, one being "very dissatisfied" and five being "very satisfied". Participants were to describe every touchpoint from the point of registering the job online, until the job was completed or they for any reason ended their customer journey. Completed forms were then returned, and the customer journeys visualised. Two researchers carried out the visualisations of the customer journeys and analyses of the participants' documentation. Figure 7 shows the beginning of one of the actual customer journeys, including visualization of the customer experience.

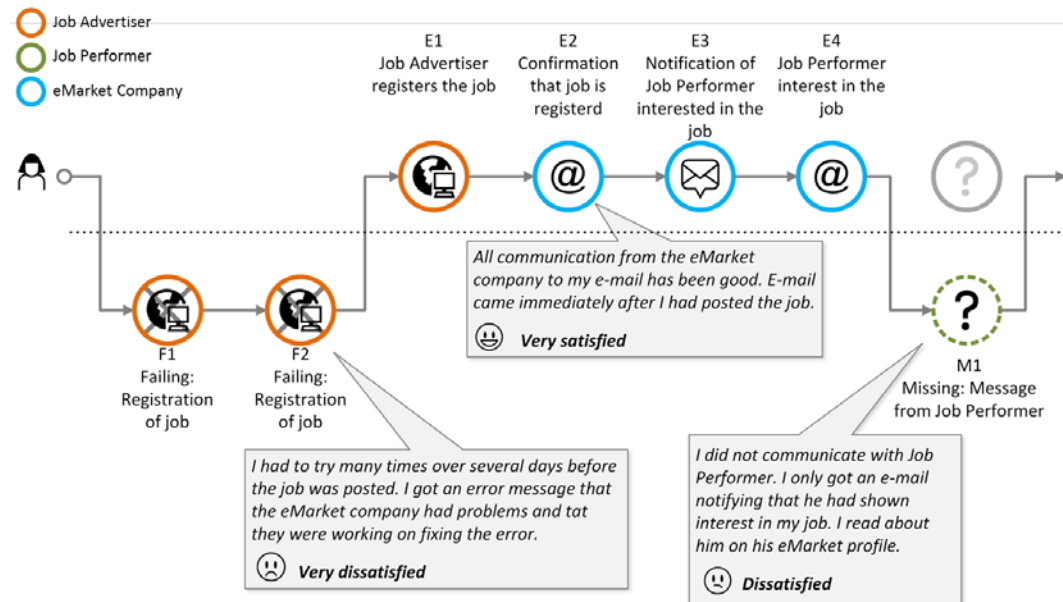


Figure 7 Actual customer journey and user experience

Most of the customers were quite satisfied with the service, despite some minor deviations from the planned journey. Key numbers from the analysis of actual journeys are summarized in Table 1.

ID Job Advertiser	Journey status	Journey duration	# TP in total*	# TP missing	# TP failing	# timing errors	Mean satisfaction
ID 1	Completed	25 days	30	3	-	-	4,9
ID 2	Completed	15 days	26	3	2	-	3,9
ID 3	Completed	10 days	25	6	-	1	3,6
ID 4	Aborted	-	4	-	-	-	5,0
ID 5	Completed	10 days	31	2	-	-	4,8
ID 6	Completed	18 days	28	5	-	-	4,2
ID 7	Completed	22 days	28	5	2	-	3,9
ID 8	Completed	1 day	11	2	-	1	4,3

*) This is the minimum number of touchpoints that were extracted from the analysis, and more touchpoints are probably exchanged directly between the two actors.

Table 1 Summary of key numbers for the actual journeys

In total, seven out of eight Job Advertisers completed their journey and the duration varied from one to 25 days. The total number of touchpoints in a given journey can only be estimated, as the service connects the two actors directly and some interactions happen out of the service provider's control. The total number of touchpoints thus represents a minimum number. On average, the actual journeys consisted of 23 touchpoints with a range from 11 to 31 (discarding the journey that was aborted). All the completed actual journeys included deviations from the planned journey in the form of missing touchpoints, with a range from two to six. Most of these represent lack of response from a Job Performers who had shown interest in the job, or missing reviews after the job was done. Two journeys also has two failing touchpoints and one journey included a timing error. Timing error denotes situations where a touchpoint occurs before or after it should, that is, when permutations occur in the touchpoint sequence. In this case study, timing error was due to the fact the Job Advertiser forgot to register, and thereby signaling others, that the job was taken until after the job was carried out.

Despite numerous deviations, mean satisfaction was high and all participants intended to use the service again. However, analyses of actual journeys provided insight to the eMarket company about how to improve the service.

Implications of mapping the actual journeys

Feedback on the usefulness of the study for the eMarket company was collected through meetings and e-mail exchange with the service team right after the study was conducted, but also after one year. In the following, we report on the perceived usefulness of the study and the language. Analyses of the feedback were conducted in relation to how employees viewed the value of CJML for mapping and analysing the service in a real context with user experience feedback from actual customers.

The mapping of actual customer journeys provided insight to *what* customers actually went through, and *how* they experienced the different touchpoints. Potential gaps and deviations between the planned and actual journeys were investigated, some that were already known and some that were new. The objective of this investigation was to identify potential patterns of deviations which may inform the redesign process of the service. Examples of such deviations are occurrence of failing touchpoints, missing touchpoints and timing errors (Halvorsrud et al., in press). Also, patterns in customer experience were identified.

In all, the eight Job Advertisers were quite satisfied with the service process, as they did not experience the deviations as serious. Compared to other studies (Halvorsrud et al., in press), the deviations can be seen as minor. However, the journeys involved some tendencies that for the eMarket company was worth taking a closer look at.

Even though the customers were highly satisfied with the service, it became evident that there were some parts and touchpoints of the journey that were prone for improvements. Several of these regarded the communication between the Job Advertiser and the Job Performer. For example, some Job Performers who had signaled interest in the job did not take additional action to contact the Job Advertiser to provide information about themselves and their previous work experience (see Figure 7, customer experience for touchpoint M1). These touchpoints appeared as missing touchpoints, as referred to in the section above. Some of the participants suggested that it should be the eMarket company's responsibility to take a more active part in motivating Job Performers to provide Job Advertisers with this

information. Another example relates to trust in the C2C market. Participants in our study reported that they wanted a way of confirming the identity of the person they were in contact with. Recently, to deal with this issue, the eMarket company has introduced a process for verified ID. Information about verified ID will appear on the corresponding user's profiles, which may enhance the reassurance. Trust among users of C2C eCommerce platforms is of high importance, as it can affect the users' trust in and loyalty to the platform (Chen et al., 2009).

The customers' experience with different touchpoints generated by the eMarket company provided valuable insight into how the users interpreted the information that was sent to them. For some touchpoints, the information was perceived as unclear. The eMarket company are currently improving the information content to make it easier to understand, thus guiding the user and clarifying details that are important for the individual user.

Discussion

Mapping of planned and actual journeys provided the eMarket company with new insight about the C2C service. Since the service was quite new, re-design of the customer journey was ongoing, and the customer journey mapping gave guidelines as to how to make the service more attractive and easy to use. Today, several touchpoint and features in the customer journey has been redesigned, in parts based on the case study results.

Through the case study described in this paper, and through other studies conducted to develop the CJML, the language has proven to contribute value to several aspects of service development. First, service providers have reported to find great value in having a common language for describing customer journeys. CJML is considered to be intuitive and easy to understand for all company employees, regardless of role or educational background. One employee for the eMarket company stated that

A common language for identifying the various customer journeys in our company will streamline product development across the different departments.

The importance of a shared understanding of how to understand customer journeys was emphasised. Furthermore, the CJML is believed to be valuable in finding synergies across a company's departments and marketplaces, so that the users will perceive that the company provides a unified eMarket platform. Second, detailed mapping and documentation of the existing service and customer's planned journey contributes a holistic overview of the service delivery process. In addition, it can provide a useful foundation for re-design of services. One service provider stated the following:

The planned journey has been useful as an overview of the customer journey, and I have used it when I have considered changes or value-added features of the service.

As described in this paper's case study, the planned journey map has also proved helpful when deciding what and when information is sent out to the customers, either it be information from the service provider itself or from external service providers that are part of the overall service process. Third, through analysis of actual customer journeys and gathering knowledge and feedback from real execution of the service delivery process, service providers are able to identify problematic parts of the customer journey. One employee from the eMarket company says:

Through the actual journey maps, we found holes in our customer journeys (e.g. absent touchpoints from our part), and some places where we see that it is possible to misunderstand what we expected the users to do. We gathered this insight and addressed the issues.

Conclusion and future research

In this paper we have described an extended version of the Customer Journey Modelling Language for analysis of planned and actual customer journeys. The application of the language and its ability to inform the re-design of services has been exemplified through a case study in a Norwegian eMarket company facilitating a technology-driven C2C marketplace.

Future research will concentrate on further development of CJML's expressiveness, as well as on structured evaluation of the language. Efforts will be made to develop tools for easy modelling of customer journey diagrams (currently, diagrams can be modelled in Visio and PowerPoint).

Acknowledgment

The presented work is part of the VISUAL project, funded partially by the Research Council of Norway (project number 219606). The authors would like to thank Ingebjørg Melien Øra for her arrangements and assistance, making the study possible. Also, thanks to the eMarket company for allowing us to investigate their service.

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Service Design Challenge: Transitioning From Concept to Implementation

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Abstract

This paper presents the results from a qualitative study that examined how the transitions from service concepts through specification to implementation occur. Twelve people working in service organisations and service design agencies in Norway, were interviewed about their experience and opinions. The interviews were transcribed and analysed using NVivo10, and thematic analysis was applied to confirm the results from NVivo10. We found that there was a big communication gap between service concepts and implementation especially inside the service organisations. To bridge this gap, we propose two solutions: strengthening service design thinking inside the service organisations and having better methods and tools that support rigorous service specification. The results of the study can be useful to service organisations who wish to have deeper insight into the transition process, in addition to service designers and researchers to have a better understanding of the service design and development challenges inside service organisations.

KEYWORDS: service design methods and tools, service development process, communication in service design

Introduction

Service design is an iterative process (Menor et al., 2002; Saco and Goncalves, 2008; Dubberly and Evenson, 2010) and includes four phases: exploration, creation, reflection and implementation (Stickdorn and Schneider, 2010). Making decision, creating image, specifying service, and implementing service might be the main events in the four phases in service design and development. The result of the exploration phase can be *a decision that is made* on the need of a new service development or a change of an existing service. This means, in this phase there will be activities to identify a need for service development or change and to define what is going to be developed in the service organisation. The outcome of the creation phase can be *images that are created* for the future service. After a decision has been made, we often see there is a process to create images in order to articulate the goals and

objectives for the development. The result of the reflection phase can be *a specification of a new or changed service* that describes how the implementation of the new service or suggested change shall be done. The outcome of the implementation phase can be an actual *service that is implemented* by following the specification that has been made in the reflection phase.

Service concept is a detailed description of what is to be done for the customer and how this is to be achieved (Edvardsson and Olsson, 1996; Goldstein et al., 2002). Previous service design researches seem more focused on ‘service design leadership’ (Gloppen, 2009) for idea generation and service concept development, than ‘service design management’ (Gloppen, 2009) for specification and implementation. In other words, service design researchers have focused more on how services are designed (Kimbell, 2011), than how services are specified and implemented. Little attention has been paid to how service concepts are actually specified and implemented in different service organisations. Our research question is “How do the transitions from service concepts through specification to implementation occur in service development projects?”

The rest of this paper is organised as follows: We first describe our research approach, research context, and methods used to collect and analyse data. We then present the results from our analysis. Finally, we discuss the results with a focus on key players and challenges in service design and development, and propose possible solutions to address these challenges.

Research approach

To answer the research question, we used a qualitative research approach. We conducted a multiple case study with people working in service development in Norway.

The aim of our research is to get an insight of how the transitions from service concepts to implementation occur in practice. Therefore, a case study fits well for our research. A case study is “scholarly inquiry that investigates a contemporary phenomenon within its real-life context.” (Yin, 1994, P33).

We aim to investigate the transitions in different organisations. Thus, a multiple case study was chosen as our research approach. A multiple case study allows us to explore several cases and understand the similarities and differences between the cases (Baxter and Jack, 2008).

To gain a deeper insight and better understanding of the transitions, we wanted to follow the interviewees’ answers. Hence, semi-structured interviews were selected and conducted from October–December 2013. A semi-structured interview is more suitable when the interviewer wants a room to ask for clarification, add questions, or follow interviewee comments (Lazar et al., 2010).

A total of ten interviews were conducted (see Table 1). The sample was selected to cover as many cases of service development projects as possible with different types and sizes of organisations as well as different roles of the informants within their organisations. We interviewed people who worked in four service organisations and three service design agencies in Norway. The four service organisations include one public organisation and three private companies, and they all provide e-services. The public organisation with 900 employees provides tax administration service. While the first private company with 190 employees produces eHealth solutions like electronic health record (EHR) system. The

second private company with 900 employees produces electricity service. The third private company with 350 employees provides an online e-commerce marketplace. The three service design agencies include a public educational institution with 120 employees, a private design agency with 45 employees and a private service design agency with 8 employees.

Interview participant identifier	Organisation type	Number of employees	Roles of the interviewees	Number of service development a year	Providing service type
P1	Public organisation	900	Business developer/ Senior advisor	150 (the whole organisation)	Tax administration service
P2	Private company	190	Product owner	2-3	E-health services
P3	Private company	900	Business developer	3	Electricity service
P4	Private company	350	Product chief	2	eMarket service
P5	Public educational institution	120	Professor and responsible for service design	4	
P6	Private design agency	45	Service designer	1 per 0.5 year	
P7			Service designer	N/A	
P8			Studio manager	1-2	
P9			Project manager	2-3	
P10	Private service design agency	8	Service designer/ Managing director	20-30 (the whole company)	

Table 1 Background information of the informants

All the interviewees were engaged in service development projects when the interviews were conducted. Three informants said that they were working with service development all the time.

Eight interviews involved one interviewee per interview, while two interviews involved two interviewees. Here, we treat those two interviewees who attended the same interview as one informant, since they agreed with each other during the interview. A paper version of the consent form was delivered to the interviewees before the interview began. Each interview was recorded and the average interview time was ca. 45 minutes.

The interviews were transcribed verbatim. We then used NVivo10 to code and analyse the transcripts. Thematic coding (Madden, 2010) was used to fine-tune the analysis.

Results

In this section, we present the results from our analysis. We found five themes as follows.

- Stakeholders: Who are involved in service development projects, and what they do?
- Process: How the service development processes look like?
- Methods and tools: What kinds of methods or tools are used in service development projects?
- Tests and evaluations: How the results from each phase are tested or evaluated?
- Communication: How people communicate each other in service development projects?

We show our findings for each theme and explain them according to the aforementioned four main events in service design and development (making decision, creating image, specifying service, and implementing service).

Stakeholders: Who are involved in service development projects, and what they do?

Making decision: We found collective service development teams inside the service organisations (e.g., a team with a managing director, product leader, business developer, marketing department, and customer department). The team usually made decisions on the needs of a new or improved service. Sometimes in-house or external designers participated in the activities (P1 and P2). However, all the informants from the service organisations reported that they did not have an in-house ‘service designer’. The involved in-house designers were graphic, interaction and/or user experience (UX) designers (P1 and P4).

Creating image: The collective team and designer are the typical participants in the activities of creating images for future services. The service organisations believed that a project leader or business developer is responsible for creating images, while the design agencies considered that a service designer is responsible for that. Two reasons for involving external service designers were found. One was the lack of resources or competences in the service organisations, especially in large organisations (P1 and P3), while the other was to get inspiration, because people outside organisations see things differently and bring in new ideas (P1 and P5).

Specifying service: Designers were conditionally involved in the activities of specifying services. However, the involved in-house or external designers were graphic, interaction and/or UX designers.

Implementing service: A project team, typically consisting of a product leader, product development department and customer department in the service organisation, mostly led to the service implementation. Sometimes external consultants, often from IT companies, were involved in case the organisation lacked resources for technical support (P1 and P10).

P5 argued, “A *service designer* has a role of facilitating the process. They are good at customer empathy, visualising, creating a shared understanding, understanding of service thinking, and creativity in looking at problems in different ways.” The competences of the service designers certainly contributed to service development (P1, P6, and P7). P2 and P4 argued

that the external service designers contributed to taking new perspectives on things that are difficult to see beyond the limitations in the organisations. P2 said the external service designers contributed to gathering people inside the organisation. P4 stated that if the organisation would have internal service designers, they would contribute to seeing things in more creative ways.

The *service workers* were involved in the activities of creating image, specifying service, and implementing service. In the activities of creating image and specifying service, the service workers were involved mainly through workshops, interviews, observations or usability tests in order to approve goals, check feasibility, and give their input, feedbacks or wishes. P1 said that the service operating personnel were always involved in the activities of specifying services and asserted that the reason of involving service workers in specifying services was to obtain their perspective or feedback and ensure the implementation. The service workers were sometimes involved in the activities of implementing services via pilots before the services are launched (P3 and P10).

The *end users* were indirectly involved in the activities of making decision in the form of the results from user interviews or observations. They were normally involved in the activities of creating image, specifying services, and implementing services. To create images, the end users were involved in verifying ideas, testing hypotheses, concepts or paper prototypes, and providing feedbacks through user tests, interviews and/or workshops. For specifying services, the end users were involved through focus groups, lap experiments, rapid prototyping, and usability tests to find the missing parts or points for improvement. For implementing services, the end users were sometimes involved via pilots before the services are launched (P3 and P10).

Table 2 shows a summary of our findings regarding the stakeholders and their involvement in the service development. We found that the service designers were involved only in the beginning of the service development (making decision and creating image).

Events Involvement	Decision making	Image creating	Specifying service	Implementing service
Service development team	O	O	O	O
Service designer	O	O		
End user		O	O	O
Service worker		O	O	O

Table 2 Stakeholders and their involvement areas in service development

Process: How the service development processes look like?

Making decision: The ideas on a new or improved service were collected both inside and outside the service organisations through workshops, market researches or usability tests. The decisions on the needs of service development were anchored in the product team review meetings and executive team meetings in the organisations.

Creating image: The processes of creating images for future services were either specific and well-defined (P1, P3, and P8) or not well-defined (P2, P4, and P5). The informants

reported that the created images were often presented using drawings/sketches/models with text in Microsoft PowerPoint files in meetings to show the series of user experiences they would like the end users to have.

Specifying service: The transition processes from service concepts to implementation in the service organisations were quite different. Most of the organisations (P1, P2, and P3) generated and verified the ideas based on the needs and then tested the ideas before they developed the services. P4 suggested more detailed steps such as, idea generation, concept development, insight work with other teams and/or external consultants, KPI (key performance indicator) setting, specification, development, test, release, KPI measurement, and adjustment or points to improve checking.

Implementing service: Most informants agreed that a decision on the implementation start is often made formally. However, some (P4, P6, and P7) answered that sometimes the decisions were made in an emergent manner, depending on the size and decision-makers of the projects. P6 detailed that the public organisations' decisions are always formally made. Some informants (P1, P5, and P6) answered that the decision on the implementation start was made together with the early decision on service development in most of the cases. Nonetheless, some other informants (P3, P4, and P8) responded that the decisions evolve along the way and come after they map the current situations and needs and find the solutions. Other informants (P2, P3, and P10) claimed that the projects that are dependent on external factors have specific deadlines, but in the other cases, the implementation start is discussed later.

Some service organisations (P1 and P2) had processes in place to follow up changes that occurred after the implementation. For example, the service change goes through a test called quality assurance and then the change is described in documents as a new version before the change is applied. A product chief or project leader followed up with the changes and found out ways to measure the effects of the changes (P3 and P8). Sometimes, the organisations (P4 and P9) followed up the effects of the changes by monitoring a KPI set they had. Some design agencies (P6, P7, and P10) highlighted that for the possibility of adjustment, they tried to set some time to follow up the services after implementation.

Methods and tools: What kinds of methods or tools are used in service development projects?

Making decision: Visualisation (drawing and mapping) tools (e.g., Microsoft PowerPoint or customer/user journey maps) and documentation tools (e.g., Microsoft Word) were used to facilitate decision-making on the need of service development or change. Many informants claimed that some or all of the processes, methods, tools and skills in the decision-making could be improved. P6 detailed that new tools might be needed to constantly evaluate which tool would fit best in the situation.

Creating image: Process modelling methods (e.g., storyboards, flowchart, customer/user journey maps, and service blueprints), text-based requirement specification methods (e.g., scenario), and sketch were used to create images for future services. Process modelling was used to describe the holistic description and structured order while, requirement specification was used for explanation of the detailed solution. Sketch was used to illustrate a more abstract idea or the whole scope. Business model canvas, Visio shapes, and Balsamiq mock-up were mentioned as some tools to support image creation.

Many informants answered that more methods, tools, and expertise were needed when creating images. P7 detailed, “We should have broader methods of how to relate goals and goal settings into service design. To be good at setting goals for the future service is very important in the stage.”

Specifying service: The service organisations had specific requirements on how the implementation of a new or changed service should be documented. Mandate and SharePoint template were mentioned. Some informants argued that there was a need for methods to document a service better.

Majority of the informants answered that there was a need for clear specification of the service changes in terms of better explanation or way to update service workers or personnel. P5 suggested that there was a need for more formal hand over of knowledge. The informant appealed, “It is quite common that you deliver a description of the concept and then someone who has not been a part of the process will take it and their understanding is a bit different. At the end you find that the service is developed quite differently than how you imagine it.”

Many informants responded that better processes, methods, tools, and competences were needed when specifying services. We found that there was a need to have a common framework, methods and tools for better documentation for developers.

Implementing service: The informants received the information about service development/improvement mainly from their project leader through meetings. The information was then shared inside the organisation. Many informants answered that visualisation was mostly used to draw the sketches and routines about the service development/improvement. Otherwise specific project templates such as, Microsoft PowerPoint, Yammer or Jira was used.

Tests and evaluations: How the results from each phase are tested or evaluated?

Making decision: Majority of informants asserted that the idea of a new or improved service was evaluated based on needs and feasibility. The *end users* were involved in testing or evaluating ideas. P1 and P3 said that they tried to involve the end users as early as possible. P2 added that they tried to include the end users and their perspectives to the greatest possible extent. The informants from the service organisations reported that they consulted with customer call centre, UX department or user consultants to get ideas on how to involve the end users in tests or evaluations. Various user testing or evaluating methods were found, including survey, questionnaire, interview, observation, workshop, work meeting, focus group, prototyping, and online user panel via social media. P5 added that self-ethnography (do and run the service yourself as if you are an end user) was also used.

The *service workers* were often involved in tests or evaluations of the ideas on new or improved services either prior to or during a project. Some informants (P2, P6, P7, and P9) underlined that involving service workers in tests and evaluations is important. The service workers were involved through listening in, meeting, workshop, etc. to figure out their current challenges or needs, and to identify things to be done for the service development or change. Service workers from different departments (e.g., customer call centre, operating department, marketing department, and legal department) were involved in tests and evaluations. P5 indicated that in some cases service workers are not usually involved, for example, an online solution.

Creating image: The created future images were tested or evaluated by the *customer organisations* or *end users*. Some of the informants (P2, P3, and P10) accentuated that the customer organisations and end users were often involved in user interview, user (usability) test, observation, workshop or meetings when showing the concepts, stories, scenarios, sketches, images or actual designs in order to give feedback.

Specifying service: The informants emphasised that the end users were usually or almost always involved in tests or evaluations of the services specifications. Two of them (P2 and P7) mentioned that when specifying services, they tried to involve the end users as early as possible.

Implementing service: The test or evaluation is usually done through user (usability) test with prototypes or demos. Some informants (P5 and P7) added that they use focus groups. P4 responded that small services are sometimes released first and the effects are measured later.

Communication: How people communicate each other in service development projects?

According to the informants, the design agencies communicated mainly with the customer (service) organisations and end users. The service development teams in the organisations communicated with people in other departments (e.g., operation team, UX department, and customer call centre), the end users and the internal or external designers. Figure 1 shows the communication of stakeholders in service design and development with the communication directions. As mentioned earlier, service organisations communicate not only with end users and design agencies but also with people inside the organisation.

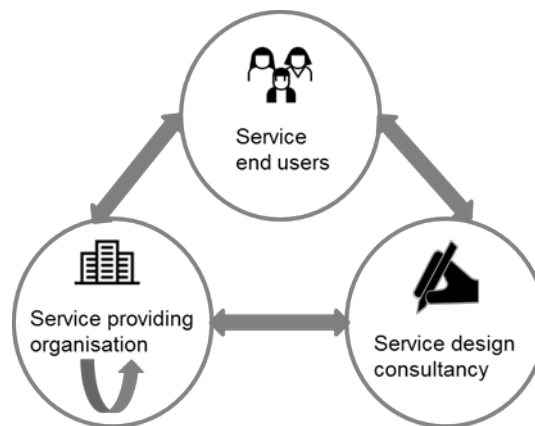


Figure 1 Main communications and stakeholders in service design and development

Methods and tools: The informants communicated with people using tools to have a common understanding of what was happening, to discuss how to resolve problems, and to receive feedback for the service development, mainly via meetings or workshops. Visualisation tools like drawing, sketch, model, and customer/user journey tools were popularly used during meetings or workshops. Emails were largely used when the organisation communicated with external consultants or organisations (P2). Blogs, social media (e.g. Twitter or Facebook), backlog systems (e.g. VTLC or SharePoint), and chatting programs (e.g. Skype or Lync) were also mentioned by some informants.

Problems: Many informants claimed that the biggest problem in communication during service development is *ensuring the communication and mutual understanding* in a multidisciplinary team. P1 said, “We have a communication needs. Understanding each other and following up are challenging because project leaders very often focus more on developing things than communicating about the development.” P2 gave an example, “I said something and then the receiver has believed that he has understood it in his own way, but we have actually not understood each other at all.” P3 admitted that some people did not understand some concepts. P5 explained, “People have different education background so they have different focus areas and different understanding of how things fit together.” P5 claimed that a lot of things got lost between image creation and service implementation. P5 detailed, “Designers sometimes see the implemented service is terrible because it seems like they (the developers) didn’t understand. Sometimes it’s due to technical reasons but other times there is this gap where the huge amount of knowledge is lost.” P6 claimed that illustrating thoughts in an understandable manner is challenging for service designers because they can think very visually while others cannot. Conversation from a distance is difficult because it is not good to show drawing things (P7). P8 stated that understanding accurately is often challenging. P10 stated, “Checking and agree on what they (service organisations) have actually understood what we (service designer) have said and what we have understood what they have said is challenging. And communicating what the customer organisation will get after the development is often difficult.”

Discussion and conclusion

In the discussion, we focus on key players and challenges in service design and development. We then propose two possible solutions to overcome the challenges and suggest directions for future research.

Key players in service design and development

Service designers are involved in the activities of making decision and creating image for future services. None of the informants’ service organisations had in-house service designers. Sometimes the organisations used personnel without design background or in-house designers with other types of design expertise (e.g. UX designer). This proves Tether’s (2008) argument that non-designers in service organisations conduct much of service design and development. The organisations needed external service designers’ support mostly to create images for future services. As claimed by other researchers (Goldstein et al., 2002; Blomkvist, 2010), it seems that external service designers focus on designing service concepts and are not involved when implementing services. The expertise of the service designers contributed to service development by taking new perspectives as interpreters of users’ experiences (Wetter-Edman, 2014) or by gathering people inside (Penin and Tonkinwise, 2009).

End users and service workers were involved in the activities of creating images for future services, specifying services, and implementing services. End users were mostly involved in testing or evaluating ideas on new or improved services, created images for future services, and prototypes and/or pilot services. Service workers were normally involved in goal approvals and feasibility checking.

Challenges in service design and development

The informants claimed that processes, methods, tools, skills, expertise, and competences in decision-making, image-creation and specification for new or improved services should be improved. Services design is “supporting integration between business development, design and technology development (Holmlid, 2009)”, thus, involves several people with different background. They communicate all the way from decision-making to implementation. We found that there is a big communication gap between service concepts and implementation especially inside the service organisations. The organisations often face problems in communicating, understanding and updating people inside. They claimed that they need better ways to document service concepts and specification, especially for the service (often IT) developers. The design agencies complained that sometimes the implemented services were different from the future services images they created with the service organisations. Many things get lost when specifying and implementing services after the services concepts and images are handed over.

Bridging the communication gap

Figure 2 shows that designers and developers have different ways of thinking. Bridging this gap would be very important in service design and development. To bridge the communication gap, we propose two solutions.

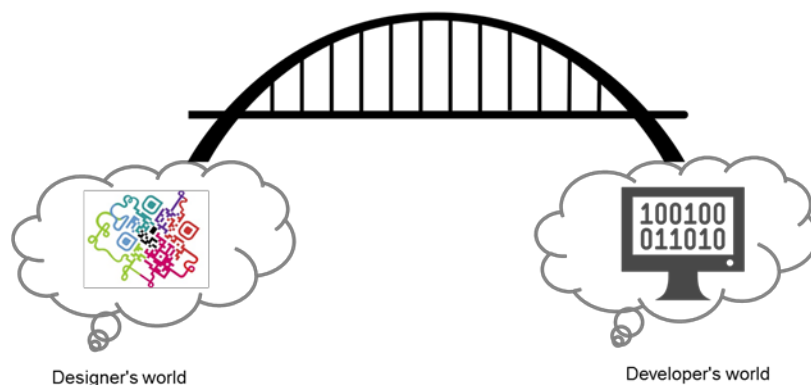


Figure 2 Bridging the designer's world and developer's world

The first solution is strengthening service design thinking inside the service organisations. Service organisations might enhance their service design expertise by educating their staff about service design thinking, involving external service designers further to specification and implementation or hiring in-house service designers who can influence the specification and implementation more directly. Junginger (2014) argued that when both the organisation and designer are prepared to perceive and handle existing organisational design legacies, doing service design would be more successful. Enhancing service design expertise inside organisations and involving service designers as communicators with stakeholders (Segelström, 2013) further to specification and implementation, might contribute to bridging the gap between the designer's world and the developer's world. People with better understanding of service design in the organisation may help to solve the misunderstanding between service designers and developers by having a role as a middleman. If service designers are involved further to specification and implementation, they would have better

chances to have direct communications with developers. More direct communications between service designers and developers might reduce the misunderstanding between them.

The second solution is having good methods and tools that support rigorous specification of services. Involving service workers in service design and development processes is important not only because service workers influence customer satisfaction but also for the service quality that is perceived (Bitner et al., 1990; Ruyter and Wetzels, 2000). However, the operational and technical feasibility of the service should also be checked by the service operating team before the service is implemented. Hansen and Jackson (2015) claimed that service concepts are not getting implemented because the presentation of services lacks viability and feasibility that are needed to be realisable. If a service is designed and specified but cannot be implemented due to the operational or technical limitation, it will result in loss of money and resources and require redoing the whole process from start. Having new service design methods and tools that support better description and documentation for specification of services will contribute towards bridging the gap between the designer's world and the developer's world. If operational and technical limitations can be discussed with help of methods and tools when creating images or specifying service, the risk of losing valuable time and resources and of redoing all the work will be reduced.

We expect that these solutions can be useful to service organisations to help them improve their service development processes and contribute towards producing better quality of services. Future research should look at the practices how services are actually specified and implemented inside service organisations after the future service image has been created. Observational studies would be suitable for this. In addition, action research studies that examine service designer's further involvement could contribute to understanding the impact. Furthermore, comparative studies that examine the capacity of expressiveness of different methods or tools for service specification could provide an exciting insight into what is missing when current available methods and tools are used.

Acknowledgements

The research presented here has been conducted within the VISUAL project (project number 219606) funded by the Research Council of Norway. Thanks to Stefan Holmlid and Amela Karahasanović for their advice on developing interview questions for the case study and to Maja van der Velden for guidance and support in analysing data and writing up this paper. Above all, we thank all the interview participants.

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Efficiently Inefficient: Service Design Games as Innovation Tools

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Abstract

This paper analyses the effectiveness of service design games (SDGs) based on their ability to trigger participant reflection. The paper draws upon game studies to present how SDGs appear as ineffective innovation tools, and combines it with organizational knowledge creation to show how the “gameness” of SDGs actually drives their effectiveness. The paper contributes to the understanding of SDGs by offering a theoretical explanation for their effectiveness, and presents a framework for analysing design games as productive dialogues. *ATLAS*, a board game for service co-design project planning, is presented as an example of embedding reflection into the design of a SDG.

KEYWORDS: service design games, knowledge creation, innovation tool, service co-creation

Introduction

In this paper we analyze the way in which service design games (SDGs) function as participatory innovation tools in service design. We bring theory from game studies to shed light on how SDGs are both game-like and how they are not, and how the game-like characteristics of design games trigger reflection over the course of a game session. The use of design games is analyzed from a theoretical framework of knowledge creation through dialogue and the role of reflection in creating knowledge on the interpersonal level.

Design games are a part of the wider tradition of participatory design, which seeks to involve stakeholders and end-users in both product and service design processes. Design games are highly context-specific, customized and designer-facilitated games, used to solicit stakeholder input and insight into user needs, as well as to promote the sharing of ideas and co-operation (Brandt, 2006; Vaajakallio & Mattelmäki, 2014). While many design games are named, they are most often case-specific such as the pioneering design games of Ehn and Sjøgren (1991: 242-263): *The Layout Kit Game*; *the Carpentrypoly*; *The Specification Game*; *The Organisational Kit*; and *the Desktop Publishing Game*. In general, the term “design game” refers to all instrumental gaming in design contexts – regardless whether they are used for data gathering, concepting, creation of physical prototypes, prototyping interaction, or design education (Vaajakallio, 2012: 89). This paper focuses on design games related to the first three, where the focus is on knowledge sharing and creation (Hannula et al., 2014).

In service design, games are used for studying particular design environments, building design competences, empowering future users by providing them with the opportunity and vocabulary to discuss existing and future alternatives, and engaging multiple stakeholders in generating shared understanding of the use and users for early concept design (Vaajakallio, 2012). These games are typically associated first and foremost with the fuzzy front end of service design and innovation, but may be used in other areas such business model creation (Ojasalo & Ojasalo, 2015). In the front end, SDGs are used for soliciting participant contribution or to enable co-creation with or between participants through material dialogue (Brandt et al., 2008). Compared to other methods such as interviews, design games enable the transfer of embodied and contextual information through interaction in a context-rich environment that scaffolds the creativity of participants (Sanders, 2006).

Within the field of game studies, games are traditionally defined through the constrained pursuit of artificial goals, where the constraints make the activity possible, more interesting, and more meaningful for their participants. In effect, when playing games people choose inefficient means of approaching goals, because that inefficiency makes the activity more exciting. For example, chess pieces have restricting movement rules and boxers use padded gloves, have defined rounds and are not allowed to kick (Suits, 1978). In this paper, we approach the game elements of SDGs through the definition of games proposed by Salen and Zimmerman (2004, p. 80), “a system in which players engage in artificial conflict, defined by rules, that results in a quantifiable outcome”. It highlights the conflict between SDGs and games in general by forcing us to question whether SDGs fit the definition of games at all, and whether these characteristics are at odds with the purpose of SDGs: Is there a conflict present in them if all players strive to advance in the design process? Since they represent the fuzzy front end of design, is there a quantifiable outcome? And, most importantly, if they are supposed to produce useful ideas, is the activity actually artificial?

We say “yes” to all these points. In this paper we argue that SDGs are games, which makes them inefficient, but that SDGs are able to leverage that inefficiency for fostering a productive dialogue and allow for new ideas and points of view to emerge. Furthermore, we show that because of their inefficiency, SDGs are so structured that they cannot be perceived as just playful co-creation tools.

With inefficiency, we refer to the aspects of games that may be perceived as delaying the design process with activities that do not directly contribute to a design goal, or as hindering the design process by making some procedural choices for the designer. In arguing that design games are efficient, we mean that they provide not just a more productive outcome, but also that the way SDGs make possible the envisioning, evoking and innovating of new concepts, creating new angles of approach and enabling deeper understanding would not be possible otherwise.

This paper expands on knowledge creation through service design games previously discussed by Hannula (2014) and Vaajakallio (2012) among others. The subject is approached using both meta-analysis and a case example of the design game *ATLAS* (2014). It answers the question *how do service design games accomplish their goals as efficient innovation tools, if they as games are supposed to be inefficient?*

Games and Efficiency

Both digital and physical games have long been studied as systems, and this systemic nature has been of great interest for the use of games for efficiency. Duke (1974) expresses this by saying that they are a “future’s language”, a means of communication able to convey entire Gestalts rather than just linear, partial aspects of the processes they describe - a thought echoed by many messengers of systemic thinking (e.g., Senge, 2006). Being more holistic than other forms of communication such as diagrams or models, they can provide immediate feedback, as well as show system-wide consequences for decisions (Lainema, 2009). They permit exploration, safe failure (Crookall, Oxford & Saunders, 1987; Tsuchiya & Tsuchiya, 1999) and even functional “bad play”, in the form of fruitfully going against their original design intent (Myers, 2010). These ways they promote double-loop learning, i.e., learning about problem framing in addition to problem solving (Argyris & Schön, 1980).

The systemic qualities of games may be present even in cases where the system being interacted with may not conform to some expectations of games. Operational gaming (e.g., Bell, 1997) is a tradition which considers any sort of simulation that has a human element affecting it to be a “game”, and such games are used to explore different options and predict possible futures. Similarly, design games such as *ATLAS* (2013), which is discussed in this paper as an example, are often borderline games: the competitive aspects of SDGs tend to be low and the goals that they have are allotelic, i.e., external to the play itself (see Klabbers, 2009). At the far end of the “gameness” spectrum are playful facilitation methods such as *CoCo* (2012), which are tellingly framed as “co-creation tools” rather than as games.

One of the causes of inefficiency in games is that they appear separated from everyday reality. This protective social contract is often called the “magic circle” of play (Salen & Zimmerman, 2004; Stenros, 2014). The concept comes from Huizinga (1939), who originally stated that like games, also rituals, drama and certain other activities are isolated from mundane reality the same way. While this might make one believe that this makes games unsuitable for creating real-life solutions, Polaine (2012) conceptually joins games with services, stating that not just SDGs, but services in general, can be perceived to take place within their own magic circles because they happen according to their own rules and in their own domains, and thus playfulness is a natural fit for their design. While a rather radical viewpoint from the perspective of game (or ritual) studies, we believe games allow experimentation and exploration with rules that might later be realized as services.

Design Games and Knowledge Creation

In order to analyze the efficiency of SDGs in not only sharing information but designing services, we utilize a theoretical framework of games supporting knowledge creation. All multiplayer games facilitate both information sharing and knowledge creation, whether they are designed for that purpose (e.g., Hämäläinen & Oksanen, 2012; Hummel et al., 2011) or just recreational (e.g., Harviainen & Vesa, 2015). The creation of knowledge, however, is not an inevitable part of all games, but has to be encouraged through either design, active facilitation before and during play, or preferably both (Kreijns et al., 2003). Trust and positive interdependence have to be established before the social environment becomes conducive for exploration, innovation and learning (Rourke, 2000). The game’s rules and level of complexity should support what Dillenbourg (2002) calls flexible strategies, the possibility to collaboratively select different approaches to problem-solving and knowledge creation.

Knowledge creation has been studied extensively in organizational research from the level of a company down to interpersonal communication, where different methods and contexts for knowledge creation are addressed. Tsoukas (2009) describes knowledge creation as dialogues where new distinctions are created and later incorporated into new practices and services. These distinctions are sometimes new words that encapsulate new concepts such as “natural selection” while others may remain as more loosely defined such as “software development methods are useful after a creative framing has been made by a software architect”. In productive dialogue, participants bring their background knowledge into focal awareness by attempting to understand each other, and see their own words in new ways based on how others respond to them. (Tsoukas, 2009)

However, Tsoukas (2009) argues that all dialogues do not offer the same kind of opportunities for knowledge creation. Productive dialogue requires relational engagement, in which participants signal to others a positive attitude toward each other and a desire to work on a shared goal, and self-distanciation, where participants exhibit the ability to remove themselves from existing practices and reflect on them from a development point of view. In productive dialogue, participants are able to take responsibility for their own faults and work together to find new distinctions that further the goal of collaboration. The opposite of productive dialogue is calculated participation, in which participants remove themselves from dialogue or try to protect an interest at the expense of the dialogue. (Tsoukas, 2009)

Based on Tsoukas’ (2009) description, games offer a number of perspectives into organizing productive dialogues. In supporting relational engagement, positive affect present in games encourages benign attitudes toward other participants and moderates the possible negative responses to suggestions and criticism. Having a shared goal within the game also frames the interaction in terms of camaraderie and “being on the same side”. If the game has a high level of interdependency, the participants are further encouraged to engage in the dialogue and to not leave themselves out. Finally, the psychological safety in games (Stenros, 2015) moderates criticism but may not encourage taking responsibility for shortcomings.

Games are able to support self-distanciation because of both the separateness of the game activity from everyday life, and the ability of games to maintain a connection to the outside world through allegory and metaphor (Crookall et al., 1987; Tsuchiya & Tsuchiya, 1999). Traditionally simulation gaming practice has resolved the challenge of self-distanciation by insisting that the game is to be conceived as self-containing in order to fully immerse the players in the game, and that the experience is only contextualized in the debriefing of the game (Crookall, 2010). This approach misses the ability of games to support self-distanciation while playing, transforming a game from simulation to dialogue.

Embedded Reflection

Design games exemplify the flexibility inherent in service design, existing on the borderline between game and co-creation tool. That flexibility allows them to act as boundary objects (Star, 1989), enabling the projection of different stakeholder interest on and through them, and thus facilitate shared understanding (Brandt & Messeter, 2004). They bring structure to the design process, and are particularly effective when combined with data through either facilitation or design (Johansson & Linde, 2005). They are highly topic-configurable or even topic-creatable (e.g., Ehn & Sjøgren, 1991), a facet that has been determined as important for organizational learning in other game types as well (Thavikulwat, 2004).

However, that flexibility alone is not explanation enough for their success, and we believe that the secret of design games is in-game reflection. Game-based learning and experimentation is by nature unfocused and requires proper debriefing for guidance and anchoring (Crookall, 2010). Such anchoring, while necessary for the gaming to have an impact, is however a limiting factor for free innovation, an intrusion of external conventions on the playful process at too early a stage - well before any feasibility testing should start. Simulation games can solve this problem through the use of e.g., reflective essays (Harviainen et al., 2014), but for service design, that is rather ineffective.

We argue that in well-designed SDGs, the reflection and a large part of the “debriefing” is actually embedded in the gameplay. That is their true strength - not only do stakeholders seek unified understanding of the task at hand and innovate new options for it, they are in truth helping each other ground the results of that search process. Information needs have a tendency to center around three facets: the situation of action and its context, requirements for task completion, and the additional factors created by dialogue and co-operation (Savolainen, 2012). SDGs assist in all three, through both their guided innovation processes and the way they instigate shared reflection. Some debriefing and the writing down of selected results might still be needed but the essential reflection has been performed to a large extent already by the time the game session ends.

Example: Reflection in SDGs

We present *ATLAS* as an example of embedding reflection and dialogue into the design of a SDG. *ATLAS* is a board game intended to be played in a group of 3-7 players from different backgrounds and one or two researcher-facilitators guiding the players through the game (Figure 1). It was created to support the players on collaboratively building knowledge and capabilities for service co-design project planning and execution, for instance providing support for choosing an appropriate co-creation method and select participants for a specific service context. In each game the players plan a service co-design project set in a specific context.



Figure 1: A game of *ATLAS* in progress

Our analysis of *ATLAS* is based on ten game sessions with different and diverse stakeholders from the Finnish government, multiple municipalities, and private companies

that have undergone or are going through service co-design projects. The game sessions were videotaped and analyzed by a group of researchers to verify observations made in the field about interaction, roles and progress in the game. The case example presented in this paper is a session in which the case was proposed by an ICT platform provider looking for a service co-creation method to use with their potential partner. The game session was organized as a part of a service industry seminar in which the participants were all involved in service development in their own organizations.

Before the game began, researchers had produced the game material (Figure 2) for each of the seven tables at the seminar. Each table was playing a separate game of *ATLAS* with one researcher per table playing as a facilitator who was responsible for explaining the game rules, maintaining the flow of the game, and guiding the players to a productive discussion. The facilitators were not players in the sense that they did not pursue a game goal and did not contribute in answering the questions. However, the facilitators were encouraged to raise or rephrase questions to enable discussion between players.



Figure 2: *ATLAS* game material: five decks of hexagon tiles, large black ending tile, a deck of method cards, a deck of persona cards, and player sheets.

At the beginning of the game each player introduced themselves by writing on their player sheet their name, project role, prior service co-creation experience, and learning goals for the game. After the introductions, the players agreed upon a case that would be the challenge for the game. This particular case had a real-life challenge for the players, while other tables had a fictional scenario made for the game session. After agreeing on the case, the players were asked to choose a motivation for their project from the green deck of “motivation for co-creation” tiles. The players selected the “Enabling a collaborative platform for various partners” motivation as their primary motivation out of the six available alternatives but agreed to select two additional tiles, “Creating new ideas” and “Enabling organizational change”, as secondary motivations. The players wrote their objective for the project, “to create a platform with/for multiple partners”, to a sticky note, attached it to the motivation tile and placed in the center of the playing area.

The green motivation tile acted as the starting point for the rest of the game, as further question tiles were placed around the initial tile turn after turn. Each turn, a player drew either a question card from one of the three question card decks – “project definition”, “participants”, and “methods & tools” – or a “challenge” card according to his or her preference. All players then discussed the question or challenge on the tile, and after collaboratively agreeing on an answer it was written down and placed with the tile onto the table. With the exception of the initial motivation tile, every tile was placed next to an already placed tile, allowing the players to address how each new answer relates to the previous answers. At the end of the game, the players had formed a honeycomb structure on the table consisting of an objective and a selection of decisions made to achieve the objective (Figure 3).



Figure 3: A completed ATLAS game session

Some tiles referred to two additional decks of cards used in the game: the persona deck and the method deck. The persona deck was used when a “participants” tile asked the players to choose up to three participant groups to involve in the project. The persona cards depicted people of varied ages, sexes and ethnicities with only a name and a photo, and the players were encouraged to freely associate what participant groups they imagine there might be in the context of the case. This allowed the players to apply their knowledge relevant to the case, in contrast to forcing the players to select the "correct" alternatives from preselected participant groups.

Similarly, the method deck was used when a “methods and tools” tile asked the players to draw three random method cards and select one that they consider should be used in the project they are planning. To compensate for the differences in service co-creation experience of the players, the method cards included descriptions of the ten methods used in prior service design research projects in Aalto University. The methods described on the cards were customer journey, design probes, design game, personas, process simulation, future recall, acting and drama, scenarios, service blueprinting, and storytelling/narratives (for further descriptions see e.g., Brandt et al., 2008; Bødker, 2000; Mattelmäki, 2005).

Once the allocated time of 60 minutes had run out, the game entered a reflective phase by playing the ending tile (Figure 4). Each of the questions of the ending tile required the players to summarize the answers to one category of question tiles or challenge tiles. Bonus tasks on the card suggested that the players reflect on their own learning in the game. The players were also given a flipchart paper to write a summary of their project plan. At the end

of the reflective phase, the players had created two artefacts that documented the process of planning the service project: the constellation of tiles and answers that was created by playing the game (Figure 3) and a document that answered the summarizing questions of the ending tile. These documents were taken by the players to be used in their perspective organizations and act as a shared draft for the service co-creation project plan.

Wrapping up
Read the questions, choose the 3 – 4 most important cards related to them and write a summary.

What is the goal of the project?

Who should be involved as participants?

What methods and tools will be used?

What lessons should be taken into account?

Bonus task
Reflect within your team:
 · How has my role evolved through the game play?
 · How could we develop today's learnings further?

Figure 4: Ending Tile

The verbal feedback of the players was overwhelmingly positive, and both the effectiveness and the ineffectiveness of the game came up in the players' spontaneous comments:

Well this has been a pretty effective way in an hour or a bit over an hour to go through a number of different viewpoints to this service design which we definitely wouldn't have been able to do in an hour at one's own desk. It's like interesting the number of different viewpoints you get in this. In that sense it was a really fun experience.

From the playing perspective it was a really nice game experience. It does make me think about what all kinds of things we didn't go through in all of those cards. But at least with all the cards we did draw we were able to have a productive discussion, so it was an interesting experience and I think we were able to get ahead in our actual case.

Discussion

In this paper we presented *ATLAS* as an example of a SDG where reflection is built into the artefacts and rules of the game. The game itself does not provide a solution to a design challenge but instead the problem is discussed within the game in order to provoke self-distanciation and relational affect that contribute to knowledge creation (Tsoukas, 2009). While the game does include a structure for debriefing, the game is designed to embed reflection on work outside of the game and on how each answer in the game builds up the project plan.

Our example illustrates two methods of embedding reflection in this particular game which help us discuss the reasons behind the effectiveness of SDGs. First, *ATLAS* severs the connection between usual problems and usual solutions by removing the players from their original context. This is achieved by having the players strive to reach a game goal connected either to a fictional case or indirectly to their real life challenge. Second, dialogue in the game takes place through the game material such as the cards, which forces the players to think in ways they might not normally do faced with a similar challenge in their daily work. Both of these elements remove the players from the case, making the method “inefficient”, but as a result trigger self-distanciation in the players which encourages the forming of a productive dialogue.

The primary purpose of gaming, according to Duke (1974, p. 77), is “to establish dialogue to increase communication among a group about a topic which is complex, future-oriented, of a systems nature”. While scholars of recreational gaming may disagree about the priority of that purpose, games such as *ATLAS* appear to do exactly that. SDGs utilize their ability to increase communication in order to facilitate not just group thinking, ideation and learning, but also to do so more effectively. “Limitations foster creativity” is a truism in service design, and SDGs fully embody it.

Conclusions

This paper provided two contributions to the understanding of SDGs. As a practical contribution, this paper illustrates how reflection can take place during the game and not only in the debriefing. As a theoretical contribution, this paper presents an initial vocabulary for analyzing the use of SDGs as knowledge creation through productive dialogues.

We argue that SDGs create inefficiency by separating ideation from the problem context in either time, space or context by setting it in the magic circle of gameplay. They are games which have goals that are different but not isolated from the objectives of service design and which stop the players from getting ahead of themselves. While these elements make SDGs appear inefficient, they in fact are efficient in creating productive dialogues – the driving force behind creation of knowledge – by enabling reflection through self-distanciation, as well as the scaffolding of creativity by disconnecting means from ends. They allow reflection on means and results via simple simulations that often have very simple or participant-driven rules and authenticities.

Klabbers (2003) describes game design intended to create wider societal changes through the concepts of design in the large, to make those changes possible, and design in the small which is the actual design of simulations and games. To make game-based design in the large possible, design in the small has to reflect the intended goals. SDGs excel at this, because they by nature evoke issues of precisely that alignment. That, after all, is their very purpose: to foster deeper understanding of an existing subject and to utilize that knowledge to create new tools to access that knowledge in a fruitful manner. This knowledge creation focus makes them problematic for immediate result assessment (e.g., van den Hoogen, Lo & Meijer, 2014), but as they are essentially tools for creating functional prototypes (see Vaajakallio, 2014), their own results produce the concepts that will eventually be tested.

Future research building upon this paper should take a closer look upon the possibilities and use of SDGs. For example, Tsoukas (2009) describes situations where the creation of a new distinction can create an opportunity for the whole dialogue to move to a next stage by using

a new word. Such an expansion of thought could also be reflected in the function of a SDG: according to Vaajakallio (2012), rules in design games can be modified at will. This acting against the structure of a game can encourage transformative play (Stenros 2015). Such self-transforming play could introduce a stronger element of double-loop learning where the players create a game better suited to their needs.

Design games are also remarkable in that compared to other forms of gaming, they tend to be rather “shallow”, yet they are still highly efficient. For example, the SDG role-plays described by Boess (2007) would probably not even be considered “role-playing” by scholars of role-play, and the narratives constructed by Johansson and Linde’s (2005) card players are far from the complexity of recreational storytelling games or many modern video games. Nevertheless, they produce results - often very impressive results.

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Co-Creating Value: Customer Engagement through Virtual and Physical Channels

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Abstract

Customers can perceive co-creating value through different channels when they are highly engaged. The positive side of engagement includes certain channels that work as a bridge unifying various stakeholders, enabling these parties to create value. However, few studies focus on customer engagement (CE) and the co-creating value through different channels. By designing tourism campaign of a particular business district in Taipei, the objectives of this study are twofold: to explore the contexts of co-creating value among different stakeholders (the types of CE), and to verify the difference of co-creating value through virtual and physical channels (the channels of CE). There are three phases to this study. The first phase involved filtering stores in a tourism business district. In the second phase, we attempted to recruit participating stores who were willing or able to engage in city image promotion campaigns in the tourism business district. Moreover, we collected survey data to examine the difference of co-creating value through the types of CE and the channels of CE. Finally, 155 valid questionnaires were collected. The main findings of this study are that co-creating value can be divided into two main factors: *intrinsic satisfaction* and *social network*, both the types of CE and the channels of CE have significant effects on co-creating value, and compared to the virtual channel, customers of the proactive store can gain more co-creating value of social network through the physical channel. This finding can complement the existing studies of co-creating value that only focus on a single channel.

KEYWORDS: customer engagement; virtual vs. physical channels; co-creating value; tourism experience

Introduction

The individual's desire to engage in certain situation may arise from a tangible product or an intangible service, such as an inviting environment or a creative product (Pappalepore, Maitland, & Smith, 2014). As customers, tourists seek out opportunities to come into contact

with what they perceive as creative, and also to create their own narratives (Richards & Wilson, 2006).

CE can produce value such as a work goal/purpose (Hart & Sharma, 2004) or knowledge sharing (Fletcher, Guthrie, Steane, Roos, & Pike, 2003). In the past, engagement manifested as a unidirectional relation between channels, but Rowley (1997) finds that bidirectional associations are preferable for a value-creating channel. In general, channels are able to blend with both virtual and physical channels (Krishna, Lazarus, & Dhaka, 2013); yet, most past studies (Bonsón, Royo, & Ratkai, 2014; Irudayaraj & Baranidharan, 2014; Li, Berens, & de Maertelaere, 2013; Neti, 2011) have focused on the value of the physical channel, and seldom include empirical research on virtual and physical channels. Pappalepore *et al.* (2014) find that most studies of urban tourism business districts have ignored the channels by which customers engage. Therefore, it is unsurprising that research on how to utilize such channels has so far been rare to nonexistent. Thus, this study aims to explore the contexts of co-creating value among different stakeholders, and to verify the difference of co-creating value through virtual and physical channels.

Literature Review

This part begins with an overview of customer engagement and its model. Then, three research variables, the types of customer engagement (CE), the channels of CE and co-creating value, will be discussed. Consequently, we adapted a co-creating value questionnaire to analyze the relationship between the types of CE, the channels of CE, and the key components of co-creating value.

Customer Engagement (CE)

The broad definition of engagement is to take part or share with others in some activity, enterprise, etc. (Wenger, 1998). More specifically, in the field of service research, engagement is based on the existence of focal interactive customer experiences with specific engagement objects (Brodie, Hollebeek, Jurić, & Ilić, 2011). Engagement can also be defined as an aggregation of engagement experience (Nambisan & Baron, 2009). Such active interactions of a customer with other customers, whether they are transactional or nontransactional in nature, can be defined as “customer engagement (CE)” (Kumar, Aksoy, Donkers, Venkatesan, Wiesel, & Tillmanns, 2010). Thus, CE refers to an inner desire rather than consumption, and this desire may include assisting other customers – for instance, by posting a review (Verhoef, Reinartz, & Krafft, 2010; Vivek, Beatty, & Morgan, 2012).

The Types of CE

Vivek *et al.* (2012) highlighted that the intensity of an individual’s participation and connection with the organization’s offerings and activities can be initiated by either the customer or the organization. A highly engaged individual will derive both intrinsic and extrinsic value from their focus of engagement (Vivek *et al.*, 2012). Thus, the highly engaged individual will be treated as the proactive type of CE; otherwise, the rather engaged individual will be treated as the reactive type of CE. Furthermore, in this study, the store that proactively initiates city image promotion campaigns in the tourism business district will be treated as the proactive store; the store which reactively co-initiates the city image promotion campaigns will be defined as the reactive store.

Brodi *et al.* (2011) have advanced a set of five fundamental propositions defining the conceptual domain of CE. Firstly, it reflects a psychological state, which arises via interactive customer experiences with a focal agent/object within specific service relationships. Secondly, CE states occur within a dynamic, iterative process of service relationships that co-creates value. Thirdly, CE plays a central role within a nomological network of service relationships. Fourthly, CE is a multidimensional concept subject to a context- and/or stakeholder-specific expression of relevant cognitive, emotional, and behavioral dimensions. Lastly, CE occurs within a specific set of situational conditions generating differing CE levels.

Within the specific geographic and commercial contexts of the present study, CE can therefore be defined as a process whereby the customer actively participates in an activity held by or related to service providers, and then shares his or her knowledge or expectations regarding this activity with other customers. Engaged customers provide frequent feedback about products and services (EUI, 2007). Thus, the outcome of CE, for purposes of this study, is referred to as co-creating value.

The Channels of CE

The positive side of engagement includes certain channels, each of which works as a bridge unifying various organizational functions with one another and with the end customer, enabling these parties to create value at various levels of the value chain; as such, those channels can maximize co-creating value (Krishna *et al.*, 2013). Moreover, any value-creating activity, such as a festival, offers an opportunity for a variety of customer social units to come together to bond and socialize in one place (Gibson & Connell, 2012). At the acquisition channel level, service providers not only directly acquire customers but also indirectly through referrals from the prospects' social networks (Bijmolt, Leeflang, Block, Eisenbeiss, Hardie, Lemmens, & Saffert, 2010). However, the relevant studies to date have mostly been conceptual models, involving little or no empirical research on the actual conditions of CE.

Today, participants can engage in an activity through various channels, such as Internet or face-to-face meetings (Manetti, 2011) and they are able to co-create through multiple channels, while those channels might simultaneously comprise various stand-alone platforms, working in tandem. Sawhney, Verona and Prandelli (2005) highlight that virtual and physical channels have six key differences between customer engagement: innovation perspective, role of the customer, direction of interaction, intensity of interaction, richness of interaction and size and scope of audiences. That is, in physical channel, it is more firm centric and the role of the customer is passive in which customer tend to have an intensity of interaction on contingent basis; on the other hand, in virtual channel, it is a customer centric innovation perspective and customers usually play an active role. Within virtual channel, customers are projected to have a continuous, back and forth dialogue. Likewise, virtual channel can connect lifestyles associated with products or services provides by stores (McWilliam, 2000; Andersen, 2005) from which customers can perceive the image as well as deliver the image they recognize; thus, it is possible to co-create the city image through a virtual channel. Customers are coming together in virtual channel where they are publishing and sharing (e.g. blogging, podcasting) their experiences with products and services, and therefore evaluating the effectiveness of their producers, vendors and service providers. Customers are comparing each other's experiences, giving feedback to each other. As a result, customer communities in virtual channel are becoming an important influence in purchase decisions, brand loyalty and even image building (Romero & Molina, 2011). However, merely does much research papers focus on the difference through virtual and physical channel from a campaign perspective.

The key difference between virtual and physical channels is the committed step of value-creating; e.g., to discuss with each other (Krishna *et al.*, 2013). Whilst having adopted Wenger's (1998) definition of engagement as taking part or sharing with others in some activity or enterprise, this study defines the difference between virtual channels and physical channels (the channels of CE) as customers' committed knowledge-sharing based on the outcome of the campaign.

The Key Components of Co-Creating Value

Co-creating value is the value that generated during the co-creation process in which participants will be stimulated by the co-creation behavior of each other. For purposes of the present research, the value that a participant gains from an activity is referred to as co-creating value. Stakeholders including customers and service providers are co-creating value in the activity. For customers, they perceive value which formed from both intrinsic and extrinsic product attributes, including quality, price, and service is the consumer's overall assessment of the utility of a product based on perceptions of what is received and what is given (Holbrook, 1994, 1999; Sinha & DeSarbo, 1998; Sánchez-Fernández & Iniesta-Bonillo, 2007). Moreover, customers can create value for a firm through the sharing of positive (or negative) news and opinions with others and this social transmission has the potential to affect both the transmitters' and receivers' behaviours (Kumar *et al.*, 2010). For other stakeholders, any interaction is a secondary form of service experience on which more judgements of value are made. If knowledge is renewed between the service provider and its stakeholders, then marketing communication will necessarily be fluid and interactive (Ballantyne & Varey, 2006). Customer's input which can take the form of customer-self input (e.g., by spending a considerable amount of time developing the service) and customer-provided information (e.g., telling the travel agency their wants and needs) is provided significantly effects on company outcome variables (Grissemann & Stokburger-Sauer, 2012). Since most values which exist when customers are engaged usually co-create with firms, these values could be collectively called co-creating value. Therefore, one of the objectives in this study is to explore the contexts of co-creating value among customers and stores.

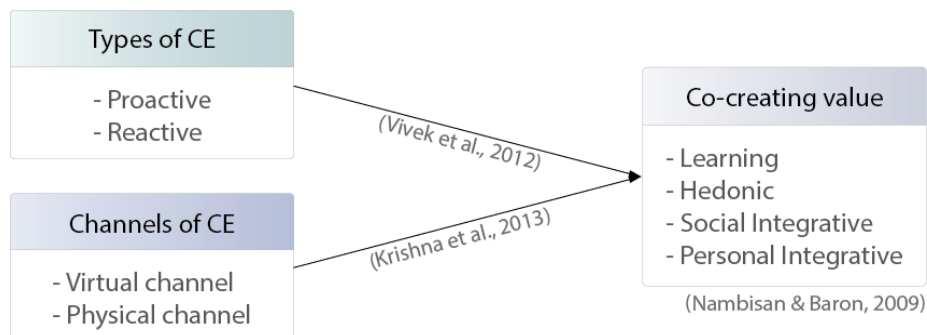
This aspect of the study is rooted in the uses and gratifications theory (U&G) (Katz, Blumler, & Gurevitch, 1974), which has been utilized in interactions between customers in certain channels (Palmgreen, 1984). There are four divisions of U&G which could be used to explain co-creating value: 1) cognitive or learning benefits; 2) social-integrative benefits; 3) personal-integrative benefits; and 4) hedonic benefits (Katz *et al.*, 1974). First, cognitive or learning benefits refer to product-related learning (Nambisan & Baron, 2009). Whether in a virtual community or a community in the real world, all participants could gain some knowledge and be willing to engage in an activity. Secondly, social-integrative benefits are subjectively produced by participants and entrepreneurs, and this value reflects what is gained by engaging in community activity. Thirdly, personal-integrative benefits are related to increasing social status or accomplishing career goals (Katz *et al.*, 1974). In other words, consumers could enhance their experience-related position, evaluation between other customers, or even providers by contributing to the product like a volunteer (Harhoff, Henkel, & von Hippel, 2003; Wasko & Faraj, 2000). Finally, hedonic benefits are the sense of satisfaction customers derive from each other through dialogue about the product and its features and usage. This study adopts these four components, *learning*, *hedonic*, *social integrative*, and *personal integrative*, as modified by Nambisan and Baron (2009), to estimate co-creating value, as shown in Table 1.

Table 1. Possible components of co-creating value

Components	Measure Items	Contents	References
Learning	Overall learning	Enhance my knowledge about the city image promotion campaigns.	Franke & Shah (2003); Hertel, Niedner, & Herrmann (2003); Wasko & Faraj (2000)
	Specific learning	Enhance my knowledge about advances in product/service, related products/services, and image of stores.	
	Collaborative desire	Enhance my knowledge by discussing with other customers.	
Hedonic	Pleasure	Entertain my mind.	Franke & Shah (2003); Hertel et al. (2003)
	New inspiration	Stimulate my mind.	
	Time Spent	Spend some enjoyable and relaxing time.	
Social Integrative	Interaction	Enhance the strength of my affiliation with the customer community.	Wasko & Faraj (2000)
	Expand social network	Expand my personal social network.	
Personal Integrative	Knowledge perceiving	Derive satisfaction from influencing product/service, related products/services, or image of stores by other customers.	Franke & Shah (2003); Hertel et al. (2003)
	Knowledge sharing	Derive satisfaction from influencing product/service, related products/services, or image of stores to other customers.	

Adapted from Nambisan & Baron (2009)

To sum up, this study will verify the relationship between the types of CE, the channels of CE, and the key components of co-creating value (Figure 1).

**Figure 1. A research conceptual framework**

Methodology

Research Method

This research was divided into three phases. The first phase included filtering the Zhongshan-Shuanglian tourism business district's 42 stores in downtown Taipei, as defined in the Taiwan Creativity Promotion Committee by Department of Cultural Affairs, Taipei City Government (2011). Twelve of these stores could be seen as representative of all the creative stores of this district (Ho, Yang, & Sung, 2014). Three of the 12 representative were willing to participate in this study, and are referred to here as one proactive store and two reactive stores; a structured questionnaire was used to collect valid data from 213 participants. The reason why the three stores are recruited in this study is that they used to co-create value with customers. To elaborate, the proactive store is not only willing to launch

city image promotion campaigns spontaneously, but to communicate with customers and make them decide to engage in the activities. Likewise, the two reactive stores have cooperated with the proactive store several times, and those stores are competent enough to co-create value with customers in the city image promotion campaigns. For example, those stores often trigger customers' interest by launching campaigns in which customers can share their experience and elaborate meanings. The second phase comprised an investigation of co-creating value. This study invited the proactive and reactive stores and customers to engage in the city image promotion campaigns in which a virtual channel and a physical channel were included. A purposive sampling approach was utilized. To determine co-creating value, data was gathered via a structured questionnaire issued to different participants completed by another 155 participants (78 from the virtual channel and 77 from the physical channel) who had visited the Zhongshan-Shuanglian tourism business district. Of these 155 participants, 55.5% were females; most were tourists (87.1%); and most of them were visiting this district for shopping (62.6%) and dining (30.3%). Phase three involves the analysis of the data collected in the prior phases as shown in Figure 2.



Figure 2. The research process in this study

Illustrations of the City Image Promotion Campaign

Value co-creation can be defined as corporations' processes involving customers and organisations interactions in all creative activities for co-creating goods, services and experiences in close cooperation (Romero & Molina, 2011). Fogg (2009) has indicated that there are three conditions of engagement: motion, behavior, and target behavior. Hence, this study made an effort to fulfill these conditions. During the city image promotion campaigns held in connection with this study, the service providers are allowed to promote these campaigns via their own channels. After participants obtained information about the campaigns and visited service providers as stated, they were able to display their impressions and the outcome of their experiences through the virtual or physical channel of this study; as such, they would become a participant with the desired target behavior that would attract other participants to engage in the same campaign via the virtual or physical channel. Participants were asked to take photos from favorite corners or atmosphere, but they were allowed to pick only one as the outcome of co-creation. The analysis of the time wall is not the focus of this study.

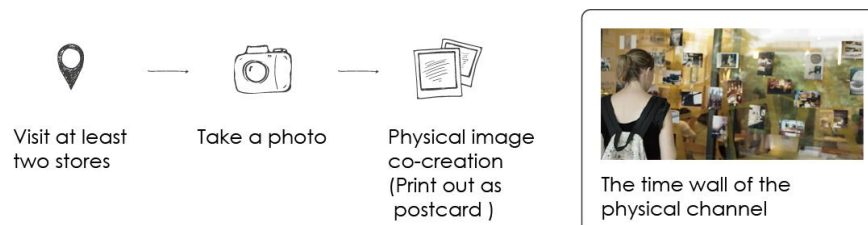


Figure 3. The steps of CE through the physical channel in the city image promotion campaign

In the case of the physical channel, the city image promotion campaign consisted of the following three steps: 1) Visit at least two stores (one proactive store and one reactive store);

2) Take photos from favourite corner or atmosphere; 3) Pick one photo and post this photo to the “time wall” of the physical channel (Figure 3).

Otherwise, three main steps are included in the virtual channel: 1) Visit at least two stores (one proactive store and one reactive store); 2) Take photos from favourite corner or atmosphere; 3) Pick one photo and upload to time wall on the virtual channel (Figure 4).

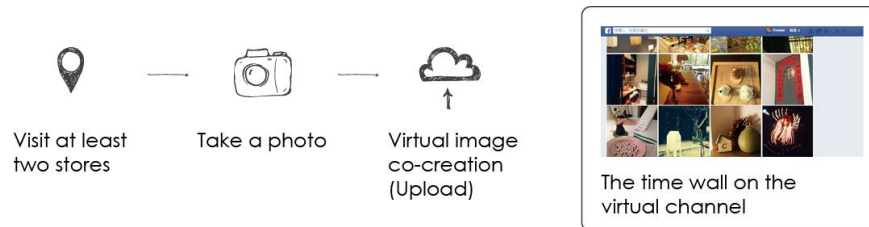


Figure 4. The steps of CE through the virtual channel in the city image promotion campaign

On completing the above three steps, each participant was required to complete a written questionnaire, and was allowed to browse the outcomes (photos) of other participants and exchange views with them.

Results

Co-Creating Value Factor Analysis

To clarify the implication co-creating value, this study investigates 155 participants on co-creating value. Firstly, a factor analysis was conducted and this study analyzes the data by principal component analysis and varimax of factor rotation.

Table 2. Factor analysis of co-creating value and descriptive statistics of each item

Variable (Factors/ Items)	Descriptive statistics		Factor 1	Factor 2	% Explained Variance	% Cumulative Variance	Cronbach's α
	M	S.D.					
Intrinsic satisfaction							
Pleasure	5.92	1.09	.851	.296	41.761	41.702	0.915
Overall learning	6.00	1.01	.822	.294			
Specific learning	5.84	1.11	.818	.285			
New inspiration	5.78	1.11	.784	.354			
Collaborative desire	5.39	1.21	.694	.436			
Time Spent	5.56	1.14	.685	.235			
Social network							
Interaction	4.87	1.49	.250	.895	33.013	74.715	0.912
Expand social network	4.81	1.36	.255	.865			
Knowledge perceiving	5.13	1.31	.447	.772			
Knowledge sharing	5.33	1.30	.457	.728			
Eigenvalues			4.170	3.301			

Note: N=155; KMO=.900; Bartlett's Test of Sphericity=.000 (***) $p < .001$

Table 2 is the factor analysis of co-creating value. It shows that two common factors are included: 1) *intrinsic satisfaction*; and 2) *social network*. The cumulative variance explained is 74.715%; the Cronbach's α of each factor is 0.915 and 0.912, higher than the standard 0.6 suggested by Nunnally (1978), revealing that these dimensions of co-creating value are valid.

Moreover, studies usually divided co-creating value into utilitarian value and hedonic value (Chen, Tsai, Hsu, & Lee, 2013; Hollebeek, 2013; Sinha & DeSarbo, 1998). Meanwhile, this study finds that co-creating value can be further divided into *intrinsic satisfaction* and *social network*. This study focuses on the campaigns in a tourism business district; therefore, participants engage in these campaigns through different channels, and they have chances to share opinions to each other. As a result, participants can be satisfied in *intrinsic satisfaction* and *social network* under co-creating value. Besides, Table 2 shows the descriptive statistics of each item; the overall presents a negative skew distribution and leptokurtic distribution; these phenomena reveal that participants have a positive evaluation on co-creating value.

Effects of the Types of CE and the Channels CE on Co-creating Value

Firstly, a T-test is used to analyze the differences between the virtual and physical channels in terms of the co-creating value ($p=.000<.005$, $T=1.834$), and find a significant difference on one factor of the co-creating value: *intrinsic satisfaction* ($p=.022<.050$, $F=2.308$; see Table 3).

Table 3: Effects of the Channels of CE on Co-Creating Value

Co-Creating value/ Channels		Intrinsic satisfaction	Social Network	Overall
Virtual (n=78)	M	5.580	4.910	-
	S.D.	0.890	1.130	-
Physical (n=77)	M	5.920	5.150	-
	S.D.	0.950	1.300	-
Overall	M	5.750	5.030	5.390
	S.D.	0.930	1.180	1.060
F value		2.308	1.192	1.834
P value		0.022*	0.235	0.000**

Note: N=155; * $p<0.05$; ** $p<0.001$.

Secondly, a T-test is used to analyze the difference between participants in the proactive and reactive stores in terms of the co-creating value (see Table 4), and reveals a significant difference across the proactive and reactive stores on one factor of the co-creating value: *intrinsic satisfaction* ($p=.006<.050$, $F=7.640$), in which the proactive store ($M=5.81$) > the reactive stores ($M=5.72$).

Table 4: Effects of the Types of CE on Co-Creating

Co-Creating value/ Stakeholders		Intrinsic satisfaction	Social Network		
		Overall	Virtual	Physical	Overall
Participants in the proactive store (n=51)	M	5.810	5.290	6.040	5.310
	S.D.	1.033	0.926	1.003	1.128
Participants in the reactive store (n=104)	M	5.720	5.670	5.830	4.890
	S.D.	0.874	0.821	0.867	1.212
Overall	M	5.750	5.540	5.920	5.030
	S.D.	0.932	0.856	0.948	1.184
F value		7.640	3.299	4.050	2.068
P value		0.006 *	0.740	0.046 *	0.153

Note: N=155; * $p<0.05$.

Then, a two-way ANOVA is used to analyze the interaction effect between different channels and the proactive and reactive stores on the co-creating value. This finds an interaction effect between the channels of CE and the types of CE on one factor of co-creating value: *social network* ($p=.046<.050$, $F=4.050$; see Table 4).

For the interaction effect, the proactive store is decent via the physical channel. As far as the physical channel is concerned, the co-creating value of the proactive store ($M=6.04$, $S.D.=1.003$) is higher than the reactive store ($M=5.83$, $S.D.=0.867$); as for the virtual channel, the co-creating value of the reactive store ($M=5.67$, $S.D.=0.821$) is higher than the proactive store ($M=5.29$, $S.D.=0.926$; see Table 4). Compared to the virtual channel, the participants of the proactive store can gain more co-creating value of social network through the physical

channel (Figure 5). In consequence, regarding to channels of CE, participants can gain intrinsic satisfaction of co-creating value through the physical channel. Furthermore, regarding to types of CE, participants can gain intrinsic satisfaction of co-creating value from the proactive store though both channels, while they can gain social network of co-creating value from proactive stores through physical channel. Thus, to deliver more social network of co-creating value, the proactive store should focus on the physical channel. For example, the proactive store in this study provides a decent area for customer knowledge sharing. Moreover, the product stories and spirits of the proactive store are decent to be introduced by front-line employees; also, through the atmosphere in the proactive store, participants could better understand the stores they visit.

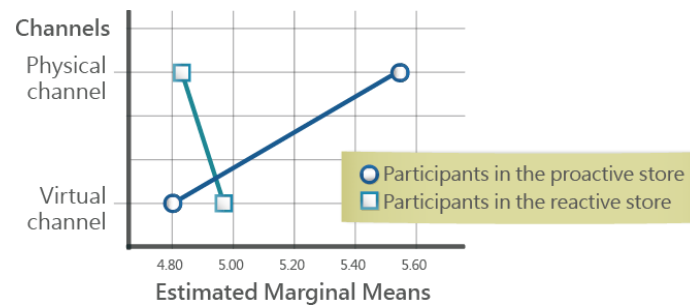


Figure 5. Interaction effect between the proactive/ reactive stores and channels on social network under co-creating value

Conclusions and Suggestions

To sum up, this study finds that: 1) the co-creating value can be divided into two factors: *intrinsic satisfaction* and *social network*; 2) both types of CE and channels of CE have significant effects on co-creating value; and 3) compared to the virtual channel, customers of the proactive store can gain more co-creating value of social network through the physical channel, and this can complement the existing studies of co-creation value which only focus on a single channel.

These outcomes carry important implications for channels-management methods of creative stores in tourism business districts with homogeneous stores. It is possible to learn how to apply a certain channel to enhance customer co-creation value, e.g. virtual channel or physical channel. Also, customers who interact with a service provider through multiple channels (the virtual or physical channel) will compare their experiences across these different channels; thus, this comparative process forms the customer's judgment of quality (Liao, Rebecca Yen, & Li, 2011). CE can enhance the product or service offerings of the stakeholders as well as provide fast feedback on any potential shortcomings of the offerings (DeFillippi & Roser, 2014). Most of the virtual customer community members possess the same interests and experiences (Romero & Molina, 2011); hence, compared to customers who directly engage in the virtual channel, those who learn about and engage in the virtual channel via physical channel will be reactive. In order to enhance co-creating value, we suggested stores in the tourism business district should try to improve customer knowledge on service offerings in terms of products, services and consistent store image, and knowledge sharing through their own social network, and entertain their mind. To gain intrinsic satisfaction, stores should have a clear marketing message such as providing new inspiration; for example, reactive stores in this study always propose promotions or seasonal schemes making locals focus on issues related to living quality and this is exactly what this

tourism business district aims to. However, to gain social network, stores should trigger customers spend more time on the physical channel; for example, to create a physical channel with a specific space and a series of themes in which related to the city image as well as services or products of the store itself. Moreover, the proactive store in this study was one culture and arts foundation, which regularly cooperated with other organizations to promote the tourism business district, while reactive stores were found as designer brands. In brief, with the existing customer experiences, it is necessary for the proactive service provider to manipulate the physical channel for higher co-creating value to customers in the tourism business district.

Recommendations

This study's recommendations for future research are as follows. First, this study finds that many stakeholders were engaging in the campaigns which this study holds in the tourism business district. Given that extensive recent scholarship has divided stakeholders into multiple classifications (Hart & Sharma, 2004; Fletcher *et al.*, 2003; Spohrer & Kwan, 2009), it would be possible for future studies of this topic to include classifications of stakeholders. Additionally, it is important to share opinions and have discussion in enhancing co-creating value; that is to say, knowledge is created as individuals in the community collaborate and share experiences and insights with one another (Ardichvili, Page, & Wentling, 2003; Wenger & Snyder, 2000). As customers become acquainted to exchanging their opinions or experiences, the future study could focus on knowledge management, especially knowledge sharing in the community.

Acknowledgment

The authors would like to thank all participants in this study. Moreover, partial financial support from the Ministry of Science and Technology (MOST; formerly the National Science Council) of the Republic of China (No. NSC101-2420-H-011-001-SS3) is greatly appreciated.

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Models of co-creation

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Abstract

This paper aims to give an overview of the existing models of co-creation and create meta-models from these existing ones. The existing models were found in academic and popular or business publications. A total of 50 models was analysed and clustered and used to create 4 meta-models of co-creation. These meta-models depict the ‘joint space of co-creation’, ‘the co-creation spectrum’, ‘the co-creation types’ and ‘the co-creation steps’. They form a framework to classify existing research as well as define boundaries for upcoming projects. These meta-models should contribute to the clarity, understanding and application of co-creation.

KEYWORDS: co-creation, service design, innovation, model, visual representation, framework

Introduction

Co-creation is a term that found its way into our daily design and marketing vocabulary. Others, outside the field of design and marketing, have also started to use it. Now different people, from different fields, use it in different ways. This does not add to the clarity of the, still young but maturing, concept. Therefore many have tried to capture or structure co-creation in a model or framework and to subsequently visualize it. These visualizations are powerful tools for understanding because they are uniform and show connections and dependencies instantly. Throughout this article the word model will be used when referring to a visual representation of a structuring of co-creation. A model should aid others in understanding what co-creation is, the steps in a co-creation process and how it relates to other fields such as service design, New Product Development, open innovation, participatory design and more. This paper aims to give an overview, according to the available models in literature, of the different ways of understanding and capturing co-creation. Next to that, meta-models are created that summarize the content of the existing models.

Literature

The very literal meaning of co-creation is: together (co-) make or produce something (new) to exist (creation). Co-creation finds its origin in co-production where consumer participation was integrated in the supply chain. At first it was introduced to achieve cost-minimization (for example IKEA) but in 1990 John Czepiel introduced the idea that customer participation may also lead to greater customer satisfaction. Song and Adams (1993) noticed that customer participation could also be an opportunity to differentiate. At the turn of the century, Prahalad & Ramaswamy (2000) presented the idea that customers are taking active roles and that their relationships with firms are shifting. Prahalad & Ramaswamy continued along this route and in 2004 they published a paper in which they used the term *value co-creation*. They described co-creation of value as an initiative of the customer that is dissatisfied with the available choices and therefore takes action. Jaworski & Kohli (2006) somewhat followed the assumption that the customer is looking for a dialogue with the firm and proposed guidelines to “co-create the voice of the customer”. Now, economies in the West are transforming towards a service dominant logic and consumers no longer buy either goods or services, but products that provide a service and the value depends on the customer experience. Consumers buy an experience of which the product or service is an artefact. Therefore, Vargo & Lush (2008) argue that in a service dominant logic (opposed to a goods dominant logic) the customer is always a co-creator.

During these changes in the fields of production and marketing economics, similar shifts of focus occurred in the field of design. In design, co-creation has its roots in human centred design (HCD) and participatory design. These movements emerged in the 70s in Scandinavia, where joint decision-making and work practices started to receive attention. One of the key words of these movements was *empowering*. Essential was also the belief that the ones who are affected by design should have a possibility to influence the design (Mattelmäki & Sleeswijk-Visser, 2011). Now, in participatory design, participants are seen as beneficial contributors to the design process by offering their expertise and knowledge as a resource. That is why the term co-creation is often associated with participatory design. Ehn (2008, p.93) describes participatory design as design “with a special focus on people participating in the design process as co-designers”. In the world of design practice today this seems common knowledge. Nowadays, designers have become the advocates of users and are asked to create ideas that better meet consumers’ needs and desires (Brown, 2008; Badke-schaub et al., 2005; Holloway & Kurniawan, 2010; Brown and Wyatt, 2010; Maguire, 2001).

From the words of Ehn we understand that *co-design* is a process used in participatory design. Co-design however, does not always have the same meaning as co-creation. Designers often use co-design to describe the process of collaboration in which co-creation can take place, so they see co-creation as subordinate to co-design. Other disciplines such as marketing more often use the term co-creation as a trend for openness, collaboration and partnership and co-design as one of the practices within co-creation, so they see co-design as subordinate to co-creation, but the terms are often tangled (Mattelmäki & Sleeswijk-Visser, 2011). The different views bring along a whole other range of substitutes for co-creation, such as reflective design, cooperative design, open innovation, mass customization, co-production, user-generated content, collaborative innovation.

In the last decade, all these terms have appeared widely in scientific literature, in professional magazines, websites of product development companies, design research and market research agencies and also in reports of public organisations. In these writings people show examples of how their version of co-creation has been applied. And “while the literature on

co-creation often fails to raise critical issues, discussions of benefits are abundant’ (LSE Enterprise, 2009) it is generally acknowledged that collaboration in new concept development increases the number (of sources) of new ideas in innovation. Co-creation enables idea generation through shared knowledge and experiences and a better understanding of the user. Besides a larger pool of ideas and a better connection of the products to the user, it is also believed that co-creation benefits an increased speed to market, reduces risk and increases customer loyalty (Auh et al., 2007). And, due to participation or co-operation, the customer will experience greater satisfaction and commitment (Dong et al., 2008; Bettencourt, 1997). Finally, the likelihood of positive word-of-mouth is higher with greater levels of customer participation (File et al., 1992). In organizational literature, co-creation has also been praised, in terms of what it can bring to the process of change. Co-creating changes, instead of imposing changes top down, is said to be more effective. This is because it becomes meaningful for the people involved, it ensures a platform for many to be heard and room for diversity, difference and desires (Wierdsma, 2004; Wenger, 2000).

From the literature cited, it can be understood that there are different definitions of co-creation and that there are other disciplines/methods often tangled with co-creation, such as co-design or open innovation. Also, because co-creation is described in many different practical applications, there is not a fixed framework or plan to follow. We support the suggestion that there is a need for “creating tools for co-creation” and conceptual clarity (Schrage, 1995; Payne et al., 2007; Roser et al., 2009).

This paper aims to bring some conceptual clarity to the term co-creation by analysing existing models of co-creation and generate meta-models based on the similarities of the existing ones. Models are a powerful tool for clarity and understanding because it is uniform and shows connections and dependencies instantly. By analysing the existing models, it is hoped that clarity in the form of meta-models can be given on three different levels: (1) theoretical: the co-creation spectrum and how it relates to other terms; (2) practical: the different types of co-creation and how they relate to each other, and (3) applied: the different steps in a co-creation process.

Method

The method for finding the relevant models of co-creation was two-fold. In the first place SciVerse Scopus was used to select all relevant articles until November 2015. The search terms included ‘co-creation’ (in the title) and ‘model’ or ‘framework’ (in the title, keywords or abstract). This resulted in 249 articles. It was a deliberate choice to use the term co-creation and not co-design. Co-design was not used because this term is often limited to the fields of design and computer studies and co-creation was used because this is the term also used in business and management literature.

The abstracts of these 249 articles were scanned for the possible presence of models or frameworks of co-creation in the article. A full version of all articles that hinted at presenting or including a model or framework, a total of 45, was downloaded. Next, the articles were searched for the presence of a visual model or framework. Out of the 45 articles, 28 unique models of co-creation were selected.

Next to that, a more arbitrary search method was used. Google was used to find models of co-creation, by searching only for images with the terms co-creation, co-creation in

combination with *model* and co-creation in combination with *framework*. The search was non-personalized and in English. The first 100 images of the three search results were scanned for useful input. To not be able to include all images is a limitation of course, as is the seemingly haphazard limit of a hundred images. However, we found that around a hundred images repetition of images occurred and almost no new models were found. Out of the 300 images, 22 (unique) images were selected for their representation of (1) co-creation in relation to other fields, (2) different types of co-creation or (3) the process of co-creation. Images that were duplicates of the models found through the SciVerse Scopus (6 in total) were not counted in the 22. Also, if the source of the selected image was secondary, the primary source was retrieved and used to refer to the model.

Together with the models from the scientific articles this resulted in a total 50 models that were analysed for their representation of co-creation.

Results

Figure 1 shows a picture of all images used for this article. For reasons of keeping the article within reasonable length, the full size existing models have not been included. The reference list contains links to all full sized images. Contact the authors to receive a PDF including all images.

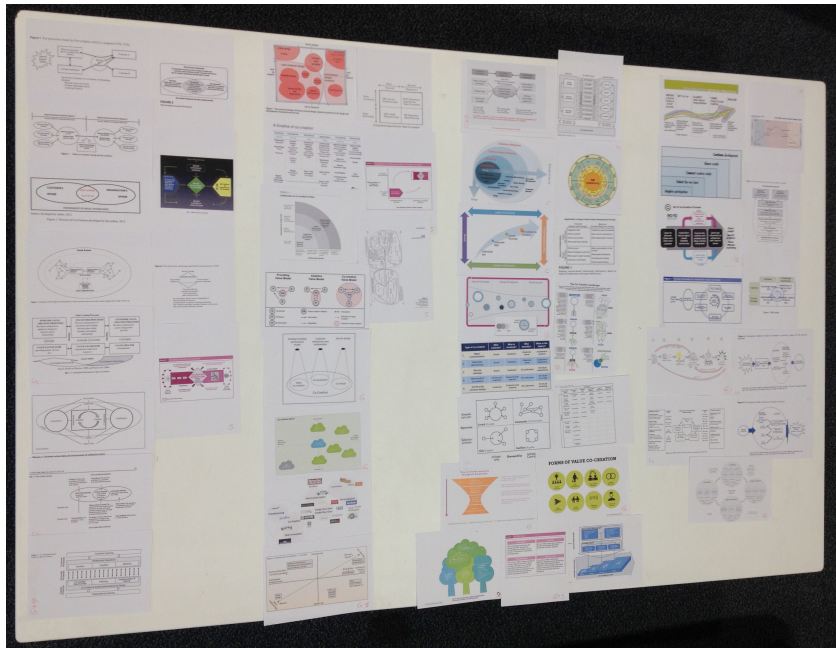


Figure 1 Models organized per category from left to right

A total of 50 models was analysed and assigned to one of the three pre-defined categories (1) the co-creation spectrum, (2) the co-creation types, and (3) the co-creation steps. However, during the analysis, another category occurred among the SCiVerse Scopus models. This category was labelled the 0-category of 'joint space of creation'. The number of models per category and search method can be found in Table 1. First, the models in the (0) category are discussed, as these are the basis of co-creation. Next, the models in the three other categories are discussed in order.

<i>CO-CREATION MODELS</i>	<i>0 Joint space of creation</i>	<i>1 Co- creation spectrum</i>	<i>2 Co- creation types</i>	<i>3 Co- creation steps</i>	<i>Total</i>
Only SciVerse Scopus (31)	11	4	7	6	28
Only Google Images (29)	0	7	9	6	22
<i>Total</i>	<i>11</i>	<i>11</i>	<i>16</i>	<i>12</i>	<i>50</i>

Table 1 Number of models per category and search method

The joint space of creation

This category includes the models of: Andreu et al. (2010), Edvardsson et al. (2011), Grönroos (2012, 2013), Laamanen & Skålé (2015), Payne et al. (2007), Prahalad & Ramaswamy (2004, p.), Ramaswamy (2008), Ramaswamy & Ozcan (2015), Skarzauskaite (2013) and Vargo et al. (2008).

The 11 models in the category of ‘joint space of creation’ represent two entities and an overlapping space or a space in between the two entities where creation can take place between these two entities: co-creation. These models show an often simplified representation of co-creation with a value input and output for both parties. The derivative meta-model can be found in Figure 2.

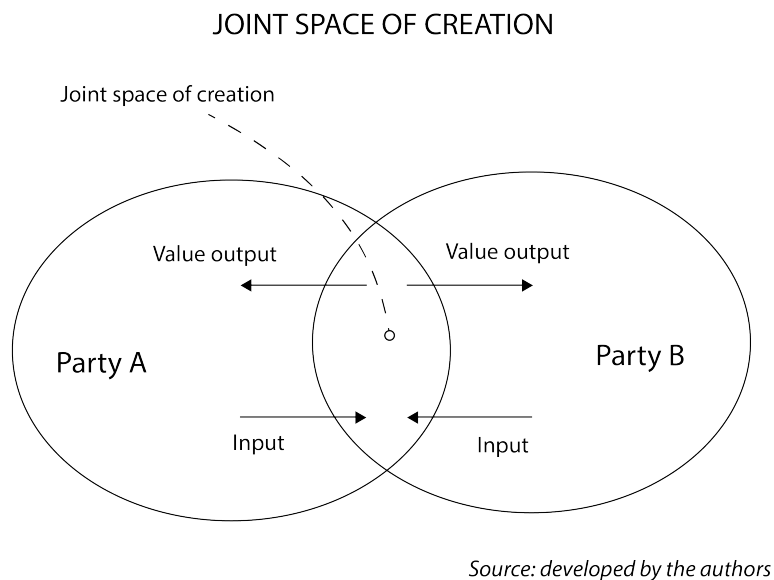


Figure 2: The joint space of creation

The spectrum of co-creation

This category includes the models of: Customer-Insight (2010), Galvano & Dalli (2014), Lin (2012), Kosaka et al. (2012), Ojasalo & Keranen (2013), Prahalad & Ramaswamy (2004),

Ramaswamy (2008), Sanders & Stappers (2008); Coates (2010), Roser et al. (2008) and Wulfsberg et al. (2010).

The co-creation spectrum gives an overview of models that place co-creation in the field of other similar or overlapping approaches / methodologies (ref). It shows that co-creation overlaps with other movements and terms such as open innovation and participatory design. There are two main movements to be seen: (1) co-creation as an open innovation movement and (2) co-creation as a participatory design method. The first movement also includes low levels of collaboration with limited influence on the design or output. The results also show models that place co-creating value opposite to more traditional business models. Traditional business models are often seen as models with no collaboration and therefore no customer influence on the output. The derivative meta-model can be found in Figure 3.

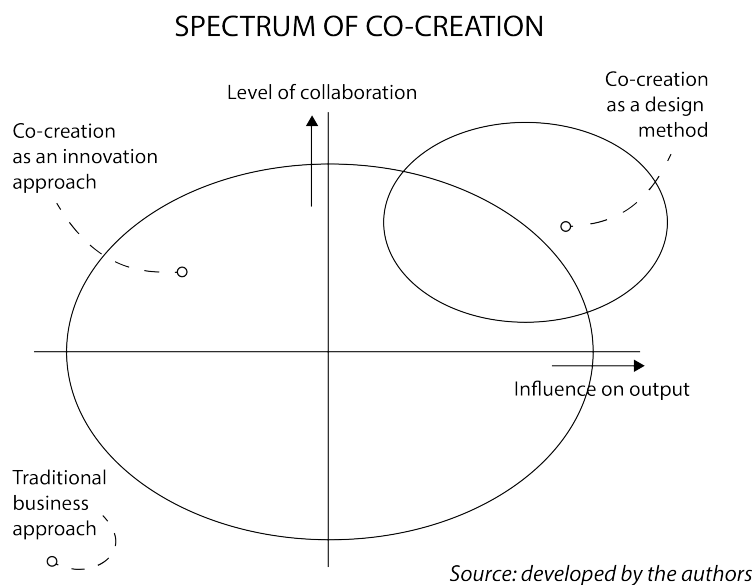


Figure 3: The spectrum of co-creation

The types of co-creation

This category includes the models of: Bartl (2009), Fronteer Strategy (2009), Frow et al. (2015), Kang (2014), Kukuru (2011), Muscroft (2011), Prahalad & Ramaswamy (2004), Quintarelli (2010), Rihova et al. (2013), SALES 20|20 (2013), Sawhney et al. (2005), Sense Worldwide (2009), Thorsten et al. (2013) and Vernet & Hamdi (2013).

These models identify different types or levels of co-creation. The types are often defined by a set of criteria or a set of axes. From the 11 analysed models, three general criteria can be derived to identify the types of co-creation:

- » (1) The moment the co-creation takes place: at the beginning, middle or end of the design or innovation process, or even in use phase.
- » (2) The amount of direct benefit or change is there for the co-creating end-user.
- » (3) The level of collaboration between the two parties.

These three criteria result in different types of co-creation. The Fresh Network (from the business perspective) and Payne et al. (from the scientific perspective) describe the different

types of co-creation in a comprehensive way. Both describe a scale with five types of co-creation that one can adopt (Payne et al., 2007; the Freshnetwork, 2009) but these are not the same five types. Payne et al. consider personalized advertising on the lower end of the co-creation scale and the Fresh Network distinguishes a last type on the co-creation scale where consumers take over the design process. In the middle of the scale, the types are more or less corresponding. Overall, from all models, five main types have been identified. The five types and the three criteria are depicted in the meta-model in Figure 4.

- » (1) Personal offering
- » (2) Real-time self service
- » (3) Mass-customization
- » (4) Co-design
- » (5) Community design

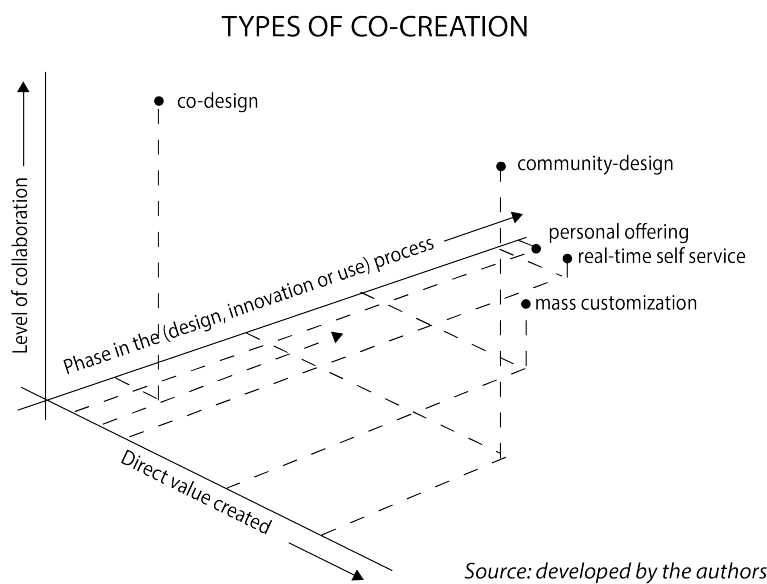


Figure 4: Five types of co-creation

The steps of a co-creation process

This category includes the models of: 90:10 (2010), Aarikka-Stenroos & Jaakkola (2012), Castro-Martinez & Jackson (2015), Farrow Partnership (2010), Fronteer Strategy (2009), Grönroos (2012) Grönroos & Voima (2013), IDEO (2011), Lambert & Enz (2012), Muent-Kunigami (2013), Nagaoka & Kosaka (2012) and Sanna et al. (2012).

The models in this last category all establish certain steps to take in a co-creation process. They mostly include four to six steps. One can argue whether co-creation is a method, or an approach but no consensus exists. A method is a combination of tools, tool-kits, techniques and/or games that are strategically put together to address defined goals. The field of design mostly uses co-creation as a method. An approach describes the overall mindset needed to conduct process. Various fields use co-creation as an approach. Because no consensus exists, the meta-model includes both the design method and innovation approach view on co-creation in Figure 5.

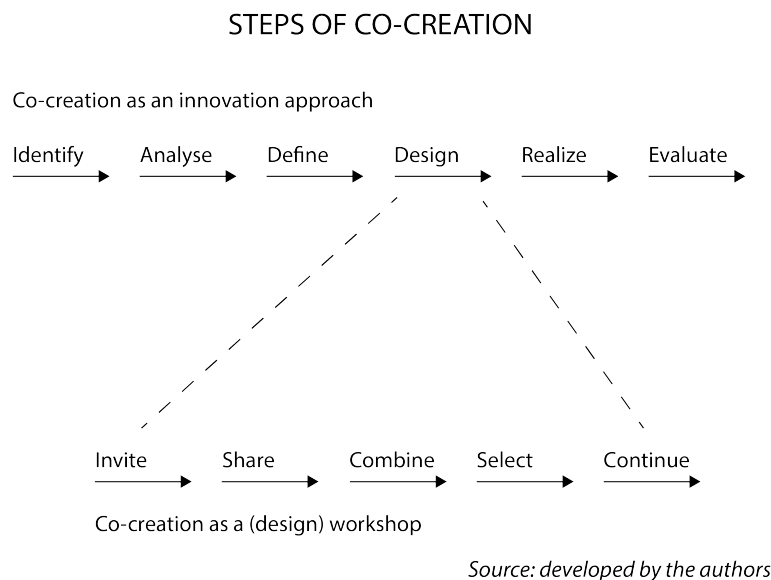


Figure 5: The steps in a co-creation process

Conclusions

It can be concluded, from the analysis of the 50 models of co-creation, that indeed there are still various views on co-creation and its boundaries. The conclusion that Rosen et al. (2009), among others, drew about a lack of clarity and uniformity of co-creation can be confirmed.

The current views on co-creation differ most in that some see it as an open innovation movement and others as a participatory design method. This shows clearly in the meta-model of the ‘spectrum of co-creation’ but it also shows in the other three meta-models. In meta-model 2, ‘the types of co-creation’, it shows that some view co-creation as a set of different ways of creating with the customer and others view co-creation as a step in a design process that involves the customer. In all 4 meta-models, an attempt is made at incorporating both views. It is hoped that the meta-models can form a framework to classify existing research as well as define boundaries for upcoming projects. In the future, this should all contribute to the clarity, understanding and application of co-creation. Therefore, the models are once more repeated in Figure 6 all together.

The differences aside, this article concludes with a definition of co-creation that applies on both the general view and the specific view, as well as the open-innovation and design perspective. This tentative definition is based on all articles cited but mostly on the works of Prahalad & Ramaswamy (2004), LSE Enterprise (2009), and Sanders & Stappers (2008).

Co-creation is the process of mutual firm-customer value creation. This facilitated (creative) process generates an active form of interaction and sharing between firm and end consumer, instead of the active firm, passive consumer interaction. One of the results of co-creation is that the contact between firm and customer moves away from transactional and becomes an experience.

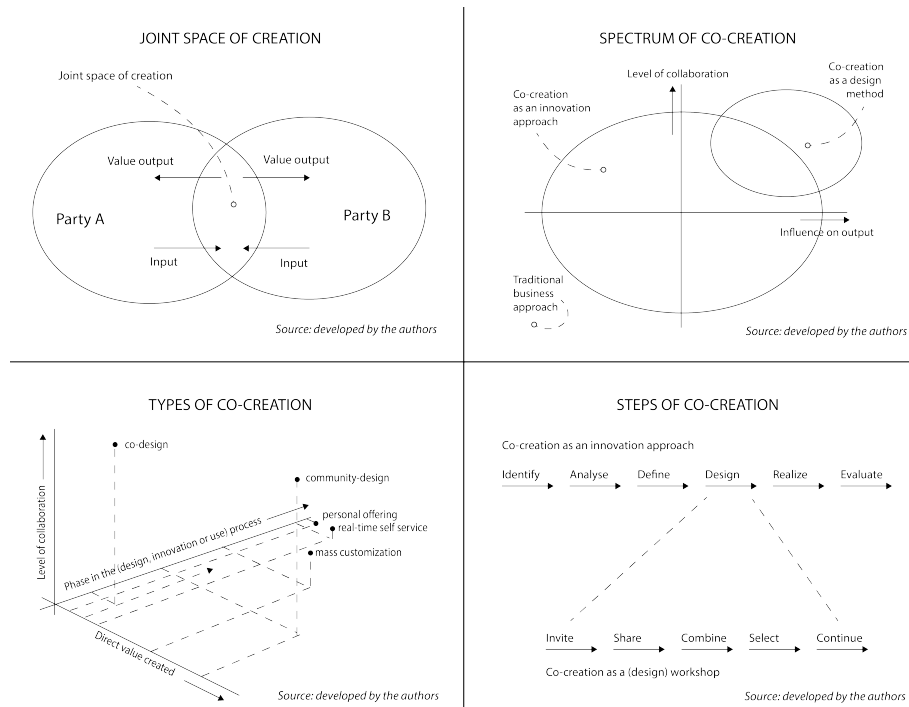


Figure 6: The 4 meta-models of co-creation

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How participation is practiced? –Extension of Participatory Design Model

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Abstract

Last few years, we have witnessed of an increased value of stakeholder participation on service design. In spite of the attention to the participation on design, we have only a limited common ground what participation means. Participants, definition, process, purpose and expectation of participation are varied from practice to practice, and consequently suggested best methods were different. However we call them all as *participation* and not explicitly articulated its meanings in a relative scale. Seeing varied participation metamorphoses as an indispensable contribution for a further advancement of service design community, this paper introduces one way of identifying participation with a conceptual diagram. Our diagram is to provide a springboard for constructive discussion among service design researchers, practitioners as well as participants themselves, by identifying and clarifying characteristics of participation in four styles with five aspects.

KEYWORDS: participation, participants, service design, conceptual diagram.

Introduction

Last few years, we have witnessed of an increased value of stakeholder participation on service design. Interestingly, talking about involving stakeholder in the design process, the concept is not new. Historically, participation for designing information systems has initiated and traditionally been conducted since 70's in Scandinavian (e.g., Greenbaum & Kyng, 1991) and 80's in North American contexts (e.g., Schuler & Namioka, 1993). Still, in Scandinavia, participation was for 'Democracy' and 'Equality' at work (Ehn, 1989; Kensing & Blomberg, 1998), thus, heavily political, while in North America, end-users were invited to provide their opinion in a context of improving usability, both of which have been called as *participation*.

Recently, participation metamorphoses has accelerated and we have witnessed of varied participation practices in varied design process at varied socio-cultural contexts than ever. Those contemporary participation practices have detached from its conventional Scandinavian political connotation and transformed its forms at varied socio-cultural

context. For example, in many conventional service design cases, users and designers are implicitly the targeted *participants*, but in contemporary practices it can also be developers, managers and service providers (Henze et al, 2012). Applied *contexts* used to be limited to user understanding in preliminary design process or usability testing in the final development process, but recent cases aim at covering wider design processes such as creating values around products, collective creativity in workshops and on online ideation (Näkki, 2012), or establishing long-term relations among design participants (ex. Kronkvist, 2012). Similarly, a few Scandinavian political prerequisite-assumptions for participation such as equality, open discussion and commitment have often less significance in modern design processes (Yasuoka, 2012). Even if it exists, *politics* in participation can be different as shown in participatory design (PD) case conducted in South Africa since African equality concept is different from Scandinavian's (Winschiers-Theophilus et al., 2010).

Socio-cultural contexts in conventional participation scene naturally have influenced in its PD methods, processes and products (Clemmensen, 2011; Iivar & Iivari, 2011). Consequently, valid design methods as well as products could be different depending on its styles. However, currently participation styles have often been neglected in the adaptation and the use of methods and processes. That often led hollow discussion of the validity of methods and processes. At the advancement of service design domain, a challenge is a lack of discussion framework. Just as Nisula (Nisula, 2012) argued that definition of service design is unstable and "it is an urgent need to find a more understandable and commonly accepted approach to service design", in this early period of the domain, we also need to have clear ways to define *participation*. Without having such fundamental scientific bases, our discussion on service design would have less value due to its misalignment to key aspects.

Taking such emerging forms of varied contexts, politics and participants for participation into consideration, we would like to take a stance that those participation metamorphoses as an indispensable contribution for a further advancement of service design community. In this paper, we introduce one way of identifying participation variables with a conceptual diagram based on our hands-on experience and the reported practices. The diagram will provide benefits; 1) To contribute service design community in general by providing a springboard for discussion among researchers and practitioners. 2) To identify design processes, roles and positions of each participants for their better participation 3) To support holistic participation process through 1 and 2.

The diagram (Fig.1) indicates a longitudinal design process. The four participation types in the diagram are described with five aspects, based on and modified upon Halskov and Hansen (Halskov & Hansen, 2015); namely context, politics, participants, method and product. A modification, substituting *people* to *participant* is intentional in order to illuminate its participation aspect.

Conceptual diagram for participation

The suggested diagram (Fig.1) is a conceptual diagram, describing an extension of typical design process models with a focus on participation. Design process often described as linear process in Design Thinking (Brown, 2009) or a concentric cycle in ISO (ISO9241-210). However, different from conventional product design, current IT service, product and services requires sustainable and iterative development over longer period due to its social aspects, in which beginning and end of the process become more vague to define in nature.

Considering those characteristics, our suggesting diagram is described as a loop form, borrowed from an infinity sign. The right circle of the diagram, *Community Scene*, indicates a socialization process in society or organizations, while the left, *Laboratory Scene*, indicates materialization process in studio or workshop. The circular visualization of the diagram implies design process as endless iterative seven-steps with no clear start and end. Two scenes are integrated as one infinity circle, in which intentional deviation occasionally connect two scenes. Thus, each circle can also be iteratively practiced only in itself without interacting the other circle.

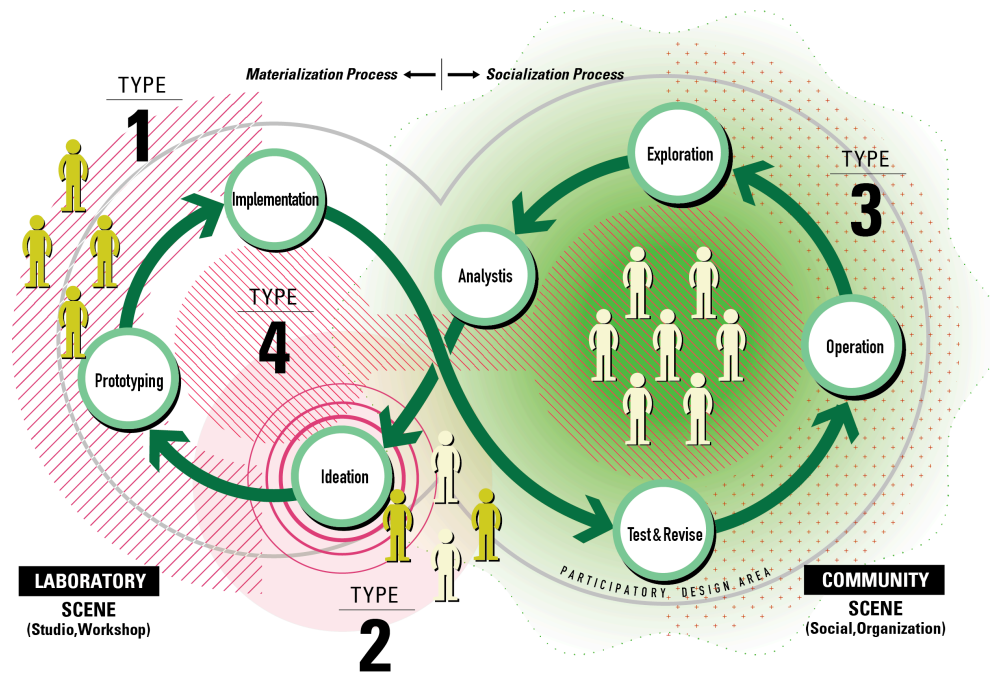
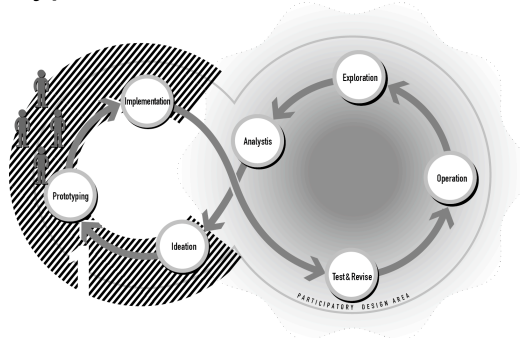


Figure 1: Conceptual diagram of design process with a focus on participation

Majority suggested circulation models are often described as a single cycle. However, our model deploys a dual cycle, emphasising that design process consists of materialization and socialization process. More importantly, two processes are not separated, but rather tightly coupled and interacting one integral process as a whole. By looking at a design process as such an integrated iterative process of materialization and socialization, our model highlights an equal importance of socialization phase to materialization process, which tends to be overlooked in design process models.

Based on the five aspects of participation, we identify four participation styles on our conceptual design process diagram; they are 1. Professional Collaboration, 2. Collective Creativity, 3. User Research, and 4. Collective Learning by Doing.

Type 1: Professional Collaboration



Type 1 (Fig.2, Table 1) is often taken as a professional collaboration style among those with skilled knowledge. Typically Type 1 participation is carried out as Hackasson, makers activities or developers camps. They are characterized by having

clear time restrictions and tangible outputs. Tangible outputs can be concrete service description or products.

Figure 2: Type 1 Professional Collaboration

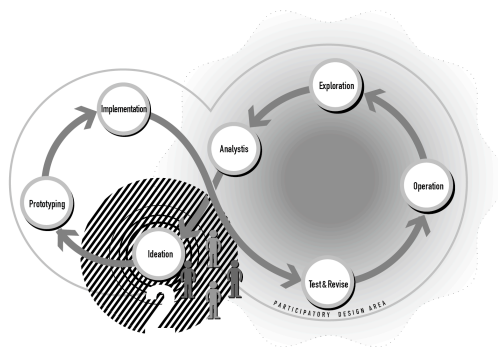
Recently, in the production scene, we have witnessed of a critical shift of conventional mass production models to digital fabrication and Makers movement based on cloud funding. Such novel production process models could scale up easily ever before through a mass participation and individual networking. This is achieved by participation of individual professionals.

Context	Professional collaboration for scaling up and improving products by sharing professional knowledge.
Politics	Less critical role in the beginning. Over time, participation creates stronger political aspects within the community.
Participant	Mainly designers or developers
Methods	Hackasson, Makers activities, Developers camps
Products	Tangible output such as concrete design service or products.

Table 1. Characteristics of Type 1 participation.

Type 2: Collective Creativity

Type 2 (Fig.3, Table 2) is participatory activity for collective creativity. As the importance of



diversity for creativity has been discussed widely (Sawyer, 2008), this type of participation aims to support creating innovative services through interactions among IT, artefacts, and stakeholders with different knowledge background. By participation, various perspectives such as internal and external knowledge are collected and utilized in a group for collective creativity.

Figure 3: Type 2 Collective Creativity

Context	Collective creativity for unfolding challenges and creating innovative solutions by collective wisdom. This can be done by mixing internal and external perspectives.
Politics	Implicit critical role. It is rarely obvious, however, implicit negotiation could occur and organizational hierarchy influences its participation.

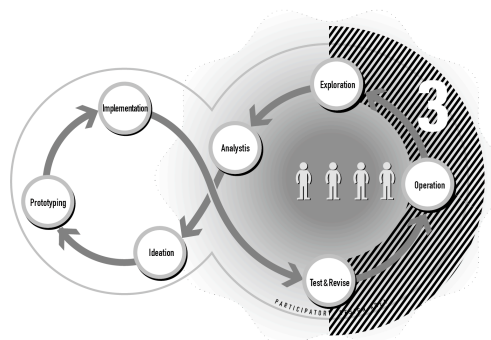
Participant	Multi-stakeholders from different professional and community backgrounds.
Methods	Future session, open innovation workshops, design-thinking processes and PD workshops
Products	Preliminary innovative design ideas, prototypes, and equivalent documentations.

Table 2. Characteristics of Type 2 Participation.

Type 2 falls into the area of future session, open innovation, design thinking and PD workshops. As a result, Type 2 is often characterized with its products and innovative ideas rather than political attitude. Different from Type 1, not all participants are creators but rather professionals from wider disciplines. Thus, creating simple and preliminary ideas and concepts rather than concrete products and services are often the main purpose for this activity.

Type 3: User Research

Type 3 (Fig.4) is participation of informants who opt to be current as well as potential users.



Thus, their participation is often limited, compared to other types. This participation is often conducted for fulfilling and improving developers' user understanding. Participants provide own knowledge and perspectives, which is not obvious for developers. The information acquired from the participants is reflected to design products and services with or without presence of informant users.

Figure 4: Type 3 User Research

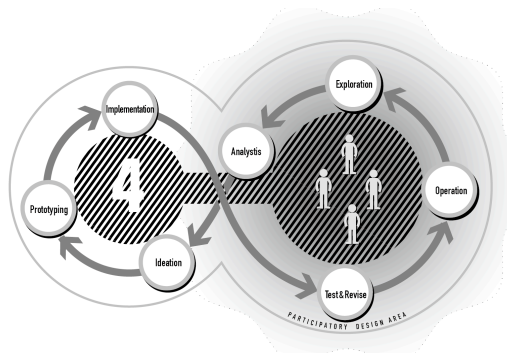
Context	Understand user requirements and acquire implicit insights about users.
Politics	Obviously critical role. Participants are asked to conduct certain activities such as investigation and evaluation often based on the contract. There exists a clear relation between client and designer.
Participant	Users and designers.
Methods	User research, user test, ethnographical inquiry.
Products	In many cases, ideas and documentations. It can also be design things, and/or prototypes.

Table 3. Characteristics of Type 3 Participation.

More typically, Type 3 is used at product developments. Participants are often invited to the design session and in return they will receive a certain kind of compensation such as money. Participants' involvement to the other design processes is often limited, and they are often less committed.

Type 4: Collective Learning by Doing

Type 4 (Fig.5, Table 4) is an activity focusing on collective learning in a group through experiencing and conducting creation of products and services. They are members to a specific community such as students, innovators and local residents. The role of each participant can be changed from peripheral participants to core contributors, and through



the process, each participant's design literacy is expected to improve through community learning. Along with the process, transfer of authority also happens. This participation is characterized with its long-term involvement and often conducted for establishing a sustainable foundation for individual and organizational learning and community-oriented culture.

Figure 5: Type 4 Collective Learning by Doing

Context	Collective learning, experiments, and community building
Politics	Obvious critical role. This type of community can be interpreted as community of practice (Wenger, 1999). Thus, community has explicit/implicit hierarchy among core contributors as full participants and legitimate peripheral participants.
Participant	Those who have interests in community itself, social goods, community revitalization and/or for a specific theme.
Methods	Living lab
Products	Concrete design service or products, prototype, sustainable community and community of practice

Table 4. Characteristics of Type 4 Participation.

Typical method used for Type 4 is approaches, such as Living lab, which is characterised as long-term commitment and its participation. The practice is often conducted in both laboratory scene and community scene, by crossing two scenes iteratively.

The four types and its relations

As shown in a dual axis of a matrix (Fig.6), the relation of those four types can be allocated into different quadrants. In this dual axis, the horizontal axis shows extrinsic motivation and intrinsic motivation, while vertical axis shows participation time span.

The extrinsic and intrinsic motivation axis indicates where the motivation for engagement comes from. Creating things and changing their own environment is a process of learning, thus intrinsic motivation can be nourished. On the contrary, partial participation as end-user in products development, such as investigating or evaluating products or services, or

participation to workshops due to top management decision tend to be posed on them by external forces.

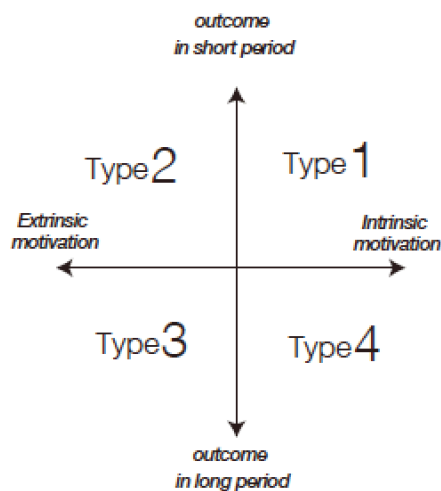


Figure 6: the four types and its relations in matrix.

The time span indication on the vertical axe is important, as timing for evaluation can be different from participation types. Acquired output through socialization process, such as pieces of qualitative data are often partial and hard to interpret and longitudinal accumulative analysis is required to see meaningful insights from such data. Similarly, the benefit of participation through materialization process should be visible in short-term perspectives.

Note that the axis as well as four types are presented not for showing absolute criteria, but for visualizing differences of participation clearly, in terms of five aspects. In other words, one project can combine multiple participation styles in different design stages.

We have witnessed that some novel projects, such as Give & Take Projects (Give and Take) and the Field Museum. In the next section, we will introduce two projects as cases and apply our diagram to the characteristics of varied participations.

Case 1: Give & Take Projects

As the first case, we introduce *Give & Take* projects, which authors got involved in as observers from time to time.

Background

Give and Take is an international service design project, which aims at designing reciprocal relations in the forthcoming aging society, with the help of information systems. The project is funded by EU as a three years international academic project among three countries; Denmark, Austria and Portugal. The project tries to establish a social design framework, in which senior citizens seeks for their quality life, and at the same time to improve sustainable welfare policies in spite of the scares at the advent of an aging society.

Briefly explained, the project aims to establish information systems, which provides and nourish give and take relations within community. The concept behind the system is sharing economy, which the system has a role to match givers and receivers for trivial but critical daily tasks for seniors such as changing bulbs, garden maintenance and grocery shopping. Seniors as user in the community, by being involved in the local community, expect to re-acquire self-esteem, which is known as critical key factor for mentally as well as physically healthier senior life. Similarly, society as a whole can benefit from seniors, as they re-contribute as social resources after retirement. Once this reciprocal relation among senior community is created, it could have high potential to scale to other generations.

Participation types at Give & Take projects

A project description of *Give and Take* (Give & Take) explains that the project applies living lab method for designing services. The core concept is involving users, and test the concept at living lab. In the first year (starting from Summer in 2014), the project conducts co-design workshops together with wide variety stakeholders such as senior citizens, healthcare professionals, social workers, municipality personnel, programmers, and system developers. In the second year (starting from Summer in 2015), the project conduct living lab at a few seniors' private houses in the community.

In the first year, for example, social workers who interact with the seniors at daily bases were invited as core participants to one of co-creation workshops. In the workshop, caretakers created give & take scenarios, which have potentially happen in the city. As a tool, workshop organisers as designers, prepared hand-drawn city maps, hand-drawn portrait, pictures and a few documents formats in which caretakers utilize in the process of story making. The workshops were organized and prepared well so that non-designers such as caretakers innovate together with original tools for co-creation such as hand-written materials.

In the first year, we have already seen the projects encompass not only living lab style participation (Type 4), which the project claims. Rather, the first year focused Type 1 by working professional collaboration with anthropologist, designers, and design researchers for preparing workshops and field investigation. Additionally, the core fundamental activities of the first year were made through Type 2 and Type 3 participation. As Type 2 participation, quite a few workshops were conducted together with varied stakeholders with the co-design materials and frameworks made by professional designers at laboratory scene. As Type 3 participation, projects conducted user research through field investigations and ethnographical inquiry. Supposing the project is conducted aligned with the project description, living lab as Type 4 will be conducted in 2015-2016 period.

Case 2: Field Museum

As the second case, we introduce *Field Museum*, which is our own case, in which university students as designers (hereafter, students) collaborate with local elementary school pupils as user (hereafter, pupils).

Background

The Field Museum program is conducted as a part of university's design program, and through this program participants co-create educational materials for natural science of elementary school level. This program has conducted continuously for ten years since 2006, which naturally indicate the sustainability of the program as well as of mutual relations between two organisations. The project involves pupils at the age of 11, led by a group of university students. The output will be presented at a local science museum in the end of the program. The project has four purposes.

1. To provide design educational program for university students. Students will acquire pragmatic design experiences as for human-centred design process through designing educational materials for pupils. This program aims at providing students to hands-on experience for learning importance of understanding users as well as conducting iterative process. Students will understand idea generation requires on the deep investigation and understanding of users, and the generated initial idea has to be polished through prototyping and evaluation again and again. By involving pupils, students will recognize users as real

entity and be able to cultivate empathy to users. This emotional involvement also makes it easier for them to evaluate design, which fit to users.

2. To provide natural science education for pupils. The program contributes constructing pupils' scientific knowledge in depth. In order to motivate pupils in learning, knowledge acquired in the lecture room should be strengthened by experiences in practice. The program could not only support intellectual curiosity, but also provide beneficial interaction among generations.

3. To contribute to local community. The program creates a space for exchanging knowledge about local nature and its environment through products. The subject matter of the program is a local natural park, and its products will be exhibited at a public museum in the park. The exhibition is open to public, as a part of open museum, which in the end involve local citizens and visitors at varied generation to acknowledge value of nature in the local context.

4. To share knowledge among educators. The program was conducted already for ten years, accumulated development process and products, and created rich archive for use. The archive can be utilized for creating manuals for "learning by doing" for teachers in wider neighbor schools of the region. This framework makes it possible to scale similar educational program to wider settings.

Fig.7 shows a relation of four program purposes and Fig.8 shows one example of outputs.

Participation types at the Project

In this project, pupils support students' learning process, while students also support pupils' learning. This two-way relation is not closed relation but open to wider multi-faceted potential stakeholders such as local citizens, in which namely open design is pursued. The program defines a relation between pupils and students as "co-design" (Type 2) while the characteristics of pupils' participation as end-user are rather interpreted as User Research participation (Type 3).

Similarly, since the program target at designing educational material (A tool to support educational process), stakeholder is not only pupils. In the educational material, there exists a double structure, in which educational professional such as teachers as well as adults in the park can be seen as user. Thus, students were required evaluating their user investigation and ideas from multi-faceted perspectives. For example, the educational materials have to include fundamental educational learning items. At the same time, students have to conduct ethnographical investigation towards pupils' behaviors and interests sphere. Additionally, students will interact varied people such as educational professionals, art directors at the science museum and physical computing professionals. They plan and conduct workshops with professionals, conduct shuffle discussion with other students' groups, and conduct discussion meetings with lecturer and elementary school teachers. Through those activities, students will gradually digest, accept and include different perspectives. This framework lets students avoid dependent only on their own perspectives and ideas, and helps students to construct open co-design sphere. The process as co-design process with professionals on different domains, can be seen as Collective Creativity (Type 2).

The Field Museum project can be mostly described as a co-design project (Type 2) with varied participants, however, from participation perspective, it is seen as hybrid participation case of Type 2 and Type 3, which different participation style is embedded within a single design process.

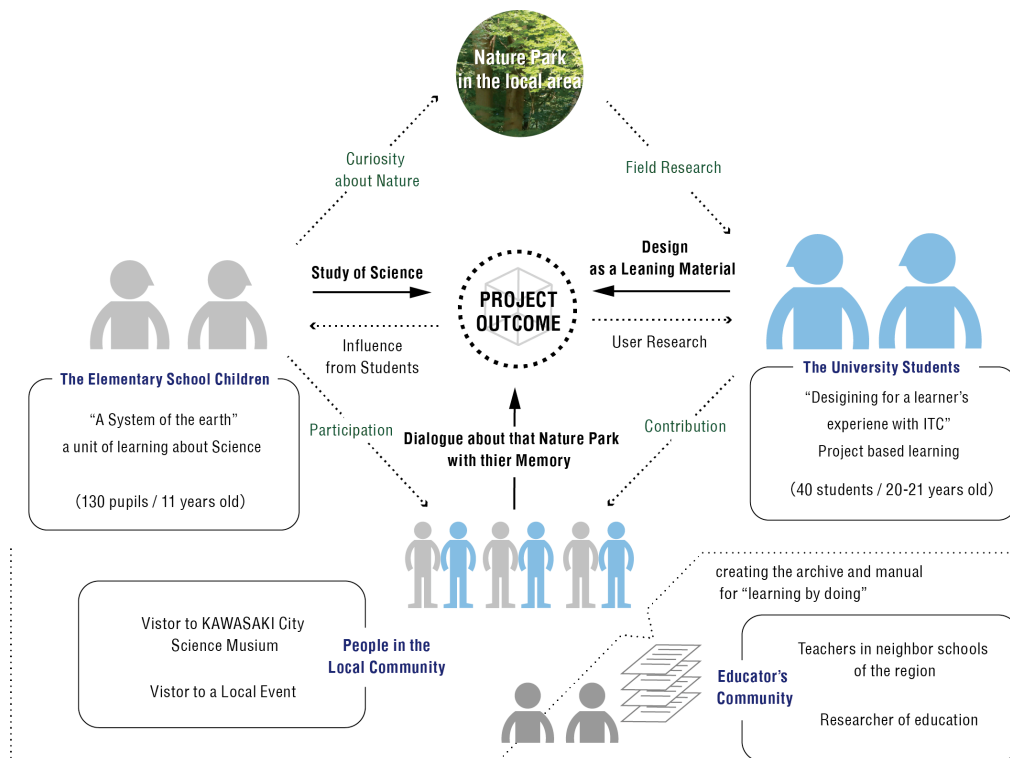


Figure 7: Relational diagram about four purposes.



Figure 8: Pupils put on with wearable devices of fish tail shape. The content is designed to provide knowledge by doing about a creation process of river. Pupils move forward in the river by shaking the attached tail which sensing computing technology were deployed. The idea was generated though kids play such as gaming and roll play.

Sustainability and service design perspective

The process is iterated usually three times at one project. Pupils at the project will be renewed every year, while a few students remain in the project next year as mentor. Together with educators (a team of university lecturers), experienced students evaluate design process, refine it and support the new program.

Findings and Discussion

In the previous sections, by introducing the design process of two cases, their participation characteristics were clarified.

Give & Take project was categorized as Type 4, living lab project. Taking Type 4 characteristics into consideration, even though core participants are its community members, the project might require extra effort to include peripheral participants as legitimate participants. Similarly, Type 4 needs long-term participation perspectives so that for example, short-term evaluation should not decide future direction. The project could expect to generate concrete service or products in the end of the project, and learning will be accumulated within and around the community in a long run. The Field Museum project is defined as Type 2, co-design project, where different knowledge from different stakeholders could be expected as creative input to the project. Participants such as university students and elementary pupils played on the equal stage, exchanging and bringing their knowledge together. As Type 2 participation, PD workshop could be an ideal method to let participants' design move.

Interestingly, two service design projects are defined by themselves as Type 4 and Type 2 respectively, however, in our view, they encompass other participation styles as well. The living lab style participation observed at Give & Take has partially Type 1, 2, and 3 characteristics, which created the foundation of the living lab participation. Similarly, the Field Museum project encompasses user research (Type 3), and professional creation (Type 1). Moreover, it also has characteristics of living lab style participation (Type 4) since the project organized by experienced students and educators collaboratively for ten years, and has formed the sustainable program ecosystem as regular annual project together with local community, where knowledge accumulates and learning nourishes within the community.

By applying our diagram in two cases, a few advantages to utilize the diagram were indicated. First, the diagram shows focus areas clearly; which participants should be considered, what kind of products the project can expect and so forth. Depending on the project' expectation, the project strategic approach could be different.

Secondly, and more importantly, our cases applied to the diagram indicate the emerging importance of Type 4 participation. Seen the diagram as a seamless PD process with sustainability, each style has a critical role to contribute to support sustainable design process, and as a whole service design process is achieved. The wide gap between innovative design ideas at ideation stage and real-world service or products has been a long lasting challenge in design science, which has tried to solve through institutionalization (Schaffer, 2013), or with a help of strategic design consultancies. For overcoming such divide, long-term participation will play an important role. Henze et al (2012) emphasizes the importance of deployment of actual experiences of users as drivers for service innovation through a whole development process, which indicates that the long-term co-creation value of Type 4 would be harnessed as critical participation type on service design, which is similarly supported by our diagram and interpretation of two cases.

In relate to the second, thirdly, the diagram and cases indicate an importance of combining participation types effectively to get the most out of the participation. As shown in two cases, each participation type in the diagram can be applied independently, but also used as combined. By combining, multi-faceted participation with sustainability, which Leight Star (Star, 1994) and Ehn (Ehn, 2008) called *infrastructuring*, can be achieved in a long run.

Finally, the diagram make stakeholders' role clearer. For example, Give & Take projects crossing freely materialization process and socialization process clearly equalize importance on laboratory scene and community scene, and indicate that interaction between two spheres is fundamentals for participation. This view makes a certain on-going discussion invalid such as whether designers' role is substituted by end-user participants in stakeholder involvement design process.

It is still a challenging task to conduct sustainable stakeholder participation. While participant resource such as time and efforts are limited, how the project could achieve their involvements and commitments. Thus as seen in cases, it would be critical to design appropriate participation infrastructure such as reciprocal relations, understand each other's expectations, and define collaborative tasks and scenes explicitly. It might seem difficult to implement. However, already quite a few projects aims at nourishing community learning and consequent change within the community for better participation, for example, as seen in Brandt's Design Game (Brandt, 2004; Brandt 2006), which aims at empowering end-users in Type 2 & 4 participation through learning to change. This can be interpreted as new types of empowerment, which Scandinavian participation has sought for since the beginning.

Conclusion

In this paper, we showed one way of identifying participation with a conceptual diagram by categorizing varied participation approaches into four types with five aspects. We also allocated the four types into the dual axis in order to show relations of four types. While diverse stakeholder participation will bring multiple benefits to design activities, participants with different professional background could also bring enormous challenges due to different perspectives and expectations. Thus, by connecting diverse people more effectively and visualize participants' roles and purposes clearer with a visual presentation such as the diagram presented in this paper, we believe that service design processes will have further benefits.

There are obviously limitations in validation of our diagrams. First, our diagram is created mainly based on our experience. Although we conducted quite a few service design projects for long time, it would benefit to analyse and validate the diagram based on wider service design cases. Secondly, although we believe the diagram could be a fundamental common ground for service design researchers, it requires further discussions. Our proposed diagram is still a preliminary concept and the authors hope to refine it through discussions with peer colleagues.

Acknowledgments

This work was supported by Senshu University Research Grant 2015, and Grants-in-Aid for Scientific Research (Grant Number: 24730748, 2015), from the Ministry of Education, Culture, Sports, Science and Technology of Japan.

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Design for Liveability: Connecting Local Stakeholders as Co-creative Partnerships

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Abstract

The Dutch welfare state model has become too expensive. As a result local governments are looking for new approaches that stimulate a participation society. Research showed that for enhancing community participation in order to improve the liveability of a neighbourhood, bonding-, bridging-, and linking social capital are important. The current paper presents the service design process of enhancing citizen participation by strengthening social ties among local stakeholders. An iterative research through design approach has been applied in the actual context of local stakeholders that aim to improve the liveability of their neighbourhood. The paper elaborates upon the design process used as well as the corresponding final design. It can be concluded that the co-creative sessions add new dimensions to citizen participation. The online platform encouraged citizens' initiative and improved all three kinds of social capital. Moreover, the quality of the citizens' proposals was beyond expectation and struck the heart of the restructuring program in Rotterdam.

KEYWORDS: citizen participation, connecting stakeholders, creative facilitation, liveability, social capital, research through design

Introduction

The ageing population in combination with the recent economic crisis has put pressure on the Dutch welfare state model. As a response, the national government proposed a so-called participation society in which citizens have to take social initiative as well as more responsibility regarding their direct surroundings in accordance to their knowledge, experience, and capacity (Elsevier, 2013). Such a society of participation calls for “reshaping society in the direction of a more participative arena where people are empowered and learning is central, which make policies more effective” (Bureau of European Policy Advisors, 2010). As a result, it will also impact the role of the civil service and the relationship between citizens and the municipality. Citizens can no longer passively consume services that the municipality previously took care of. Equally so, civil servants are expected

to leave their offices and learn about the true ambitions and needs of their citizens. Differently said, “not only are new strategies, ideas, and ways of organisation needed to cope with societal challenges, but also co-creative partnerships demonstrating a sustainable relationship to make a transforming society happen” (Mulder, 2014: p. 573).

Within the Netherlands, the city of Rotterdam has been experimenting with this new type of participatory governance for the past years. Rotterdam has the largest European harbour and is the second biggest city of the Netherlands. The city is known for its continuous drive for renewal and innovation, as well as its no-nonsense mentality. From the Second World War onwards, impressive collaborations have taken place to give the city new identities. Unfortunately, the individualisation and the 24/7 online connectivity reduced the post-war solidarity and at the same time, the communal spirit of the seventies became less dominant. However, recent initiatives demonstrate that Rotterdam is still a fertile ground for the development of new collaborative networks that aim to improve the city through social initiatives (Uitermark, 2014). Rotterdam’s borough Delfshaven is an active area in creating social initiatives. Therefore, the current work selected Delfshaven, and the Burgemeester Meineszplein in particular, as a real life testbed for designing services that support a society of participation. The Burgemeester Meineszplein is both a square and a thoroughfare connecting four smaller neighborhoods, as Figure 1 shows.



Figure 1: Overview of the Burgemeester Meineszplein and the four neighbourhoods that convene on the square.

At the start of the new millennium the square was in decay; not only were youngsters causing nuisance, also drug dealing and public littering made it an unpleasant place to stay, work, or live. In 2008, citizens raised this urgency at the then still existent local municipality of Delfshaven. A continuous lobby resulted in the installation of cameras and mosquitos, as well as the departure of criminally active entrepreneurs. After immediate issues were taken up the new formed citizen initiative collaborated with the (local) municipality, housing corporations, and entrepreneurs to further improve the liveability on the square; more greenery, less empty housing, quality real estate, and an attractive entrepreneurial climate.

Unfortunately, these plans were only partly realised; the municipal attention shifted elsewhere and the housing corporations returned to their core activity of providing and maintaining living and working space (Van der Zwaal, 2014). Also the activities within the initiative lost momentum, culminating in one good willing inhabitant, who had to look after all the green on the roundabout. Consequently, the square fell into decay and new initiatives were crucial. As a welcome response the initiative called “Laatiepleinzijn” emerged as a joint effort of three active citizens: a civil servant, a social innovator, and a social entrepreneur (Jongmans, Prinsen, & Ramos, 2014). As the current initiative stimulates other initiatives that support a close collaboration between local stakeholders such as inhabitants, entrepreneurs, civil servants, and other professionals, Laatiepleinzijn can be seen as a striking example of a participation society. Based on a shared interest in the square and community building ambitions, the initiators of Laatiepleinzijn prepared several proposals to make the square more lovable and liveable. To realize these plans they followed a bottom up approach of involving citizens, local stakeholders, and professionals (from the local government). Despite the good intentions of being a co-creative partnership (Mulder, 2014), Laatiepleinzijn is currently struggling with its continuity in a self-sustaining way and its contribution to a sustainable participation society.

A more detailed look at ongoing initiatives in the neighbourhood shows that participating locals tend to focus on events in their own street. Small groups of participants that know each other typically take the lead and execute these initiatives. Unfortunately, the attendees of input evenings were not representative for their neighbourhoods. These participative citizens were assertive, yet did not act on behalf a larger community. In other words, the citizen participation did not contribute to a larger participation of the community. Although active citizens are crucial for establishing a co-creative partnership, such a partnership needs to be representative for the respective neighbourhood in order to become successful. Too often, these groups are rarely aware of other initiatives nearby (Hepworth, 2015). Different initiatives, however, seem to struggle with similar challenges. Learning among initiatives will likely improve their success rate. Current initiatives launched oftentimes focus on immediate issues such as littering or vandalism. Whereas these initiatives do solve temporary issues, they hardly contribute to an improved situation in the long run (Hepworth, 2015).

In keeping with Sander and Lowney (2005), who showed that communities with a high degree of social capital are more successful in solving collective problems, our conceptual framework elaborates upon social capital (see next section). With social capital we refer to “the features of social life – networks, norms and trust – that enable participants to act together more effectively to pursue shared objectives” (Putnam, 1996).

Conceptual framework

Putnam (2000) specifies three types of social capital: *bonding*-, *bridging*-, and *linking* social capital. *Bonding social capital* exists between close friends and family members. The case of Laatiepleinzijn showed that bonding social capital is strong, since most initiatives occur within groups that know each other well. *Bridging social capital* refers to less strong social ties, for instance between neighbours or colleagues. These social ties can cut across social differences such as race, class, and ethnicity (Sander & Lowney, 2005). The case of Laatiepleinzijn showed that the bridging social capital was not very strong, as the initiatives do not always take into account solutions that other people in the neighbourhood prefer. Therefore these groups are not representative for the neighbourhood.

Lastly, *linking social capital* addresses the weak ties that go beyond one's present network. In order to become a successful society of participation, it is important to become conscious of which type of social capital is most necessary (Sander & Lowney, 2005). When initiatives attempt to improve local liveability, new social ties need to be bridged; those between neighbours, local entrepreneurs, and professionals are most valuable. Once ideas involve multiple neighbourhoods and organisational layers within the local government, linking capital is needed. This is in accordance with Granovetter (1973), who emphasizes that weak ties are "indispensable to individuals' opportunities and to their integration into communities". In such situations, citizens will have to find ways to reach outside their direct network and get in touch with municipal departments, local investors, or national charities. Current observations showed that still too often the initiators are not aware of other initiatives. This implicates that the necessary linking social capital is not very strong.

It can be concluded that initiative building could improve local liveability; however, current initiative building only served the bonding and some bridging social capital. This process can be improved by increasing the 'bridging of social capital' and to introduce linking social capital as well. The current work, therefore, explores how to facilitate the initiative building process while strengthening the social ties among local stakeholders. Using a research through design approach we aim to create social ties on the levels of bridging and linking, without losing bonding social capital. In the remainder, we explain the research through design approach. Next, the resulting service will be explained layer by layer. Then experiences of various stakeholders with the design are discussed, concluded by lessons learned and recommendations for future participative projects.

Research through design

To connect local stakeholders in order to improve the liveability of the Burgemeester Meineszplein through the three types of social capital, a research through design approach has been used (Koskinen, Zimmerman, Binder, Redstrom, & Wensveen, 2011). We took this constructive design research approach, since improving liveability is an ill-defined problem. A research through design approach allows for the discovery of the main problems regarding the construction of the three types of social capital while designing (Koskinen et al., 2011, p. 2). The necessity of concrete problem framing and the presence of a "specific, preferred state in a context of use" require such a grounded approach (Zimmerman & Forlizzi, 2008).

In the present service design process the following research question was guiding: How can social ties between stakeholders be strengthened through service design? The accompanying interaction vision, which formed the backbone for the service development, was phrased as follows: "Feeling supported yet free and being tempted to participate." More specifically, our chosen research through design approach consists out of three iterative phases: ideate, iterate, and demonstrate (Boess & Mulder, 2012). Within these phases a variety of design and research explorations (D&REs) were performed; a continuous series of activities where research and design go hand in hand. Each D&RE started with a (detailed) research question or assumption and resulted in the creation of research tools and/or prototypes to assess the design. The insights from the one D&RE were used as the starting point for the next.

Figure 2 shows how these D&REs connect two parallel processes; the design of a broadly applicable service (service design process, on top) and the exploration of this service by the facilitation of a series of co-creative sessions on the square (initiative building process,

bottom row). In a synergy, elements of the service were evaluated during the sessions and in return, insights of the sessions were included in the design.

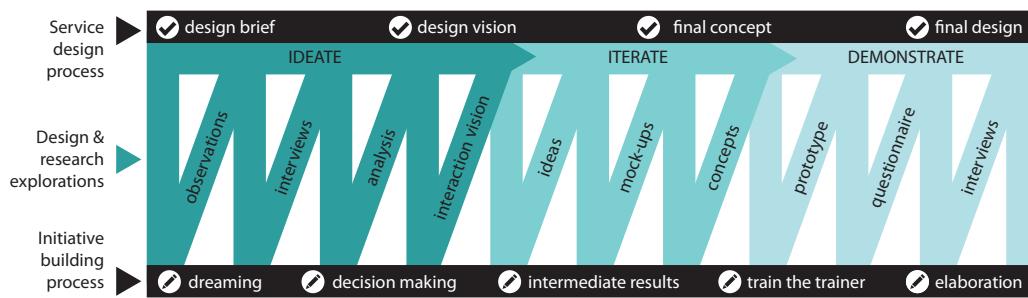


Figure 2: Visualisation of the approach.

Key to the concept of co-creative partnerships is the equal relationship among partners (Mulder, 2014). We, therefore, emphasise equal partnerships, and aim to enable them to turn the public domain into a participatory domain. A variety of co-creative techniques has been used to stimulate the equal participation and allowed for actually designing with local stakeholders, which eventually led to a strengthening of the social ties between citizens and other stakeholders of the Burgemeester Meineszplein. Consequently, the co-creative sessions were central in this approach. By reframing creative techniques in the context of local participation we introduced a new way of initiative building. In total five sessions took place, being “Dreaming”, “Decision making”, “Intermediate results”, “Train-the-trainer” and “Elaboration” (see bottom row in Figure 2).

The proposed workshops lasted for roughly three hours and were based on the methodologies of integrated Creative Problem Solving (Tassoul, 2009). The general set up of a creative session was as following: (1) start with an icebreaker to familiarize the participants with each other and the problem and to get them at ease, (2) generate ideas for a particular problem (= diverging), (3) cluster similar ideas, and (4) pick the best ideas to continue with (= converging). The first author has created specific templates to support the participants during the exercises. In between, he applied energizers to keep the energy flowing. The first author made use of the existing Burgemeester Meineszplein network and announced the workshops via various mediums, such as Facebook, email and occasional flyers. With attractive visuals and frequent reminders inhabitants were stimulated to participate.

Final design

The design created to facilitate the strengthening of the three forms of social capital between citizens and other stakeholders, consists of three parts:

- » An initiative building toolkit consisting out of steps, exercises, roles and templates
- » An online platform allowing the stakeholders to share their ideas
- » A *system of* stakeholder profiles, moments of interaction between the stakeholders and touchpoints with the proposed toolkit and platform

In the following sections, these parts are introduced one by one.

Initiative building toolkit

The research findings of the creative sessions informed the design of a toolkit that facilitates social participation. More specifically, the toolkit guides citizens through a process of initiative building. By going through this process together, citizens strengthen their social capital by bridging and linking social ties that consequently contribute towards more sustainable developments and more participation. Each step of the developed process consists out of a series of designerly exercises that serve as input for *creative neighbourhood meetings* (Figure 3).



Figure 3: Impression of a creative neighbourhood meeting.

Depending on the purpose of the meeting diverging, clustering, or converging exercises can be performed. Each exercise is explained in detail and suggests how, why, when, and with whom it is done best. The use of the developed templates makes the exercises easier to perform. Citizens can use this toolkit for the development of several types of initiatives, as we discovered throughout the project. Although every initiative is unique and objectives can range from a local barbeque to the redevelopment of public space, the process towards realisation appeared to be quite similar. By communicating the process up front, the chances of dropping out are reduced. The steps of the process are:

- » *Sharing*; starting the initiative. Communicating the initiative and its objectives. Promoting the upcoming workshop(s).
- » *Dreaming*; learning about possibilities in citizen participation. Coming up with a vision for the neighbourhood.
- » *Thinking*; elaborating the vision into ideas.
- » *Choosing*; selecting the most promising idea.
- » *Elaborating*; materialising the selected idea and translating it into a funding proposal.
- » *Doing*; realising the idea, optionally with the support of commercial professionals or municipal departments.
- » *What's next*; communicating the results and expenses, thinking of continuation, or discuss the closing of an initiative.

Whilst facilitating the creative neighbourhood meetings, it became clear that in order to make initiatives successful, it is important to create a (clear) role division among participants. Based upon the roles that people took during the sessions, we developed nine roles that are necessary during initiative building, which are initiator, facilitator, buddy, expert, insider, note-taker, promoter, host, and treasurer (see Figure 4).

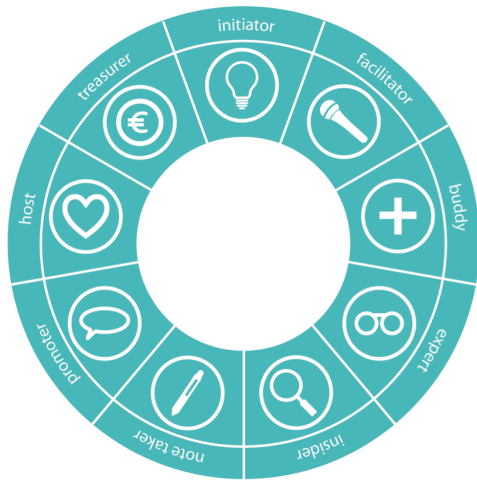


Figure 4: Roles division wheel for initiative building.

The role division wheel shows the different tasks inhabitants could take. By asking participants to assign oneself to a role, existing social capital within an initiative becomes tangible and explicit. Therefore it is transferrable to other initiatives, which increases bridging- and linking social capital. Not all roles are required within every initiative and/or step, yet the fulfilment of the roles contributes to the continuity and resilience of the initiative. It is possible to share a role (e.g., the one of treasurer) and participants also can take up more than one (e.g., being both a host and a promoter) at the same time. However, to prevent conflicts between process and content, the roles of initiator and facilitator should not be combined. The role division wheel is also part of the initiative building toolkit, and aims to facilitate all roles in order to sustain the effect of the initial facilitating role of the service designer.

Online platform

The initiative building toolkit is accessible by means of an online platform, where the steps together with accompanying exercises and roles are available, including downloadable templates. Initiatives are able to share and announce a project and show their progress by creating a profile page (Figure 5). This page contains the steps and the exercises performed, as well as overview of the members of the initiative, providing insight in the available bridging social capital. In order to secure personal information, citizens can only view data once they are logged in. Sharing information among initiatives serves multiple purposes; (1) initiatives can learn from each other's approach (= improving linking social capital), (2) the network of the initiative becomes visible and accessible to citizens (= improving bridging and linking social capital) (3) supporting stakeholders can use the profile pages to keep track of local participation (= improving bridging and linking social capital) and (4) stakeholders can use the information to assess and validate financial requests (= improving linking social capital), (5) civil servants of the Rotterdam municipality can provide online support and upload municipal templates and forms, which results in more feasible proposals (= improving linking social capital).



Figure 5: Screen shot of the online platform prototype.

The platform facilitates information sharing among multiple stakeholders. Sharing the process of initiative building makes higher levels of sharing possible, which go beyond the communication of activities and the availability of physical means and services. For instance, treasurers of different initiatives can help each other with financial questions, resulting in new *linking* social ties between initiatives. The proposed platform exceeds existing platforms as it provides support during the *whole* process and *involves* the supportive stakeholders. On top of this the platform connects citizens with the people from the local government, which enhances social participation dramatically. The benefit of earlier municipal involvement is twofold; assessment becomes less time consuming and less requests are turned down. This second advantage contributes to more civil participation and possibly a better image of the municipality, leading to even more participation.

System

In order to further facilitate inhabitants in initiative building, recommendations for supportive stakeholders are formulated. We divided the diverse and multidisciplinary group of supportive stakeholders in four subgroups based on their role in the process and the scale of their activities (see Figure 6). The main stakeholders are the citizens, who attempt to strengthen social capital and improve local liveability. These are themed as the *leading locals*. Leading locals are people who are capable of strengthening social capital on the bonding-, bridging and linking level. Secondly, Rotterdam appointed so-called area connectors and managers, which are unique to Rotterdam. Their primary task is to enhance civil participation, expand the local network and connect the inhabitants with the municipality. We called these people the *keen connectors*. Keen connectors support the leading locals by sharing their network containing other inhabitants, entrepreneurs, professionals and civil servants. On top of this they can provide information regarding a funding proposal and search for physical space for the creative neighbourhood meeting. The third role we distinguished is the one of the *empathic experts*. These can be the municipal departments as well as commercial professionals who are professionally involved with the realisation of the idea of the initiative.



Figure 6: Stakeholders grid.

Both the municipality as the commercial professionals operate on a citywide scale. Empathic experts support the leading locals with information regarding municipal rules and regulations, as well as other specialised knowledge that might be necessary to realise an initiative. They can also support an initiative with tools and skills to execute their idea, for example a gardener can assist in the realisation of a shared garden. The fourth group that we distinguished are *involved investors*. This group consists of charities, foundations and institutions that are willing to support the initiative financially. These are assigned with the assessment, grant, and evaluation of the initiative and often operate city- or nationwide. Involved investors support the leading locals with the financial means to realise their ambitions and/or make them sustainable.

At certain moments in the initiative building process the different stakeholder groups gather; these are the touchpoints. Even though the activities on the platform happen online, physical interactions are central in the realisation of initiative building. One stakeholder group is not able to realize all objectives on its own. Most touchpoints happen between the leading locals and the keen connectors, who support the citizens with the right means, e.g., materials, a location, or their network. In this way they function as a bridge between the leading locals, the empathic experts and involved investors. The contribution of their network makes necessary linking capital accessible. Intermediate touchpoints on which decisions have to be made might involve the attendance of empathic experts, who advise and assess the feasibility of the initiative. If necessary, they might also support the initiative in the realisation of their goals. Sporadically the involved investors will join to assess, award, and validate proposals. Their involvement is mainly at the end of the initiative building process.

Discussion and Conclusions

We have presented the service design process of a service that aims to enhance citizen participation into community participation by strengthening social ties among local stakeholders in the area of Delfshaven in Rotterdam by allowing them to design for liveability. Perceived unawareness of on-going initiatives as well as the communicative gap between citizens and the municipality gave insights in how the process of initiative building can be improved. The resulting design includes an initiative building toolkit, an online platform, roles, and touchpoints for the identified stakeholder groups. It can be concluded that reframing creative exercises in the context of civil participation adds a new dimension to conventional initiative building and liveability. The facilitated creative neighbourhood meetings proved to be an innovative way of connecting stakeholders.

An evaluative online questionnaire with participants of the sessions revealed that the participants were positively surprised by the creativity, energy, and enthusiasm that they generated. Different activities such as diverging, converging, and clustering kept the energy flowing, in addition to the alternating group(s) (sizes). Once participating in creative neighbourhood meetings, differences in social status seemed to fade away, which again paved the way for new social ties. Bridging social capital emerges as participants discover similarities and shared interests. Local community centres and entrepreneurs also benefit from the creative neighbourhood meetings, as they become known amongst participants. Linking social capital is brought in as different stakeholder groups join and participants start to share their personal and/or professional network. The keen connector plays a key role in the establishment of these linking social ties.

Although each participant already had an intrinsic motivation to join (e.g., the realisation of a playground, social inclusion, more greenery) the creative design exercises made it possible to integrate the different interests into one coherent plan fitting the local interests. Inhabitants, professionals, civil servants, and investors all have an equal say and are guided towards this shared plan. This finding shows that the approach is in line with participatory design principles that democratize decision-making processes through design. Design allows focusing more on the content instead of political agendas (Lindtner, Greenspan, & Li, 2007). Collaboratively creating an initiative also resulted in a sense of ownership, as all participants had a share in the outcome. As participants repeatedly collaborated towards a set goal, both bonding and bridging social ties were strengthened.

The designed service also allows the creation of new social capital across projects. Evaluative interviews with chairmen of other initiatives learnt that the exchange of initiative building experiences can aid novice initiators and prevents reinventing the wheel. Next to this, examples of successful initiatives can stimulate inhabitants to start their own. By sharing an initiative page on the platform (as shown in Figure 5) bridging social ties become visible and therefore stronger.

Furthermore, a demonstration of the online platform amongst area networkers and managers sparked the enthusiasm of the tech savvy co-workers. They strongly believe that the platform could be a useful online extension to observe participation and to assess and validate funding proposals. However, they found the expected attendance of them during creative neighbourhood meetings early in the process too time consuming and not feasible. On top of this, they said that early engagement could be in conflict with the assessment of the proposal in the end. Even though, their accompaniment on the Burgemeester Meinezplein resulted in new linking capital between citizens, professionals and investors.

Looking back at the creative neighbourhood meetings, participants explained that social capital within the area indeed had increased. Participating locals got to know their neighbours better (resulting in stronger bonding social capital) and met new neighbours (creating more bridging social capital). The involvement of professionals and investors, brought in by the network of civil servants, provided new linking social capital on the Burgemeester Meineszplein. These weak ties allow individuals to become part of a larger community (Granovetter, 1973).

Importantly, the Burgemeester Meineszplein has been put on the political agenda. After presenting the proposals to the municipal departments and corresponding public services, it became clear that the proposals addressed the heart of restructuring plans of Rotterdam. As a result, some ambitions collided with municipal plans and could therefore not be realised by inhabitants in short notice. These are to be implemented by the municipality in the coming years. Other ideas were possible; yet needed more deepening and budget to be allocated.

Due to the structural improvements proposed by the inhabitants, the realisation of their ideas takes time. The absence of visible short term results and the lacking sense of urgency might have demotivated participants, resulting in less activity within the initiative. It is therefore important for initiative building processes to keep the momentum going. The facilitator could be this important catalyst in the process. S/he treated all stakeholders as experts of their own experiences. The participatory design approach of the facilitator also made personal differences to disappear. It shows that stimulating, independent, and continuous facilitation is essential in the creation of social capital. Equipped with skills in creative problem solving, visualisation and with an empathic capacity, the facilitator is fit to guide an initiative over a longer period of time. S/he will be capable of creating the overview and foreseeing the impact of a particular idea or project. This facilitator can focus on content apart from any political agendas, which will democratize ideation and also the realisation of ideas.. The independence of the facilitator allows him or her to function as a bridge between citizen and government, as well as facilitating the interplay between top-down and bottom-up. S/he needs to take care that the proposed service is continued to use. Bonding-, bridging- and linking social capital through the service only works when new content is provided to the platform. Otherwise social capital is likely to decrease again, especially the bonding and bridging ties.

The social experiment on the Burgemeester Meineszplein shows how various urban stakeholders can be connected in order to improve local liveability. Yet this first attempt needs to be further evaluated and detailed. The designed service has the potential to be implemented in other cities, yet it is essential that stakeholders are involved from the start and are able to determine their own objectives, roles, and steps.

Within the initiative building process, the steps towards the realisation of a liveability-related goal are as valuable as, if not more valuable than the eventual result. Recurrent creative neighbourhood meetings strengthen social capital, irrespective their outcome. The proposed service can serve as a guide for a new dialogue in the participatory domain, in which citizens and government will meet in the middle. Initiatives will have to structure their activities enabling civil servants and commercial professionals to join. Vice versa, the municipality will need to meet the citizen in the streets. Civil servants will need to empathise with these “leading locals”, which requires a significant shift in mentality and activities. By becoming involved earlier in the process, even before concrete results are visible, the municipality shows its trust in the ambitions of its citizens.

Current initiators are already exploring the new relationship between citizens and the retracting government. Within such societal experiments, the designed service supports these new roles and provides an integral approach to enhance initiative building and therefore strengthen social capital as well as improve liveability.

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A Value-based Approach to Co-designing Symbiotic Product-service system

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Abstract

For a sustainable service system, the symbiosis of stakeholders is one of the critical factors. In that the symbiotic relation between stakeholders can be sustained based on the mutual benefit, exchanging value in a reciprocal way is significant. However, it is a challenge to generate symbiotic solution producing mutual value in service system design due to the complexity of the network, involving the different interests of stakeholders. This study motivated from the new perspective on value exchange in terms of Product Service System and developed the Value based co-design model (VCM). It is the methodological model for generating symbiotic solution through value exchange between stakeholders with new perspective on the resource. The model is applied to the PSS workshop for promoting sustainable food production and consumption. Finally, the insights about the model in terms of generating symbiotic solution and the designers' role in this specific model are discussed.

KEYWORDS: co-design, value exchange, symbiotic solution, Product Service System, service design

Introduction

Symbiosis, defined as the living together of unlike organisms (Douglas, 1994) is increasingly accepted as a strategy for sustainability by enterprises and societies. Advocates of symbiosis argue that in designing of symbiotic relationships we have something to learn from the ecosystems in nature where different species exchange materials, energy, or information in a mutually beneficial manner (Chertow, 2007). A service ecology system involving various stakeholders can be considered in a similar vein. The sustainable service ecology is maintained by the actors exchanging value in ways that are mutually beneficial (Livework, 2008). Despite the acknowledgement of the importance of symbiosis, it is a challenge to

implement symbiotic solutions that provide mutual value to stakeholders due to the complexity of the value network, with its involvement of the different interests of numerous stakeholders (Briscoe, Keränen, and Parry 2012). In developing symbiotic solution, product-service systems (PSS) (defined as an integrated system of products, services, supporting networks, and infrastructure (Mont 2002)) is a potential strategy for generating mutual benefits among stakeholders. This is because PSS provides opportunities to deliver complicated services through outcome focused interactive activities between stakeholders which transcend the traditional disciplinary, functional and organisational boundaries of the consumer and firm (Barnett et al.). To manage the interactions based on needs, PSS studies have explored methods and tools to analyse both stakeholders (Van Halen, Vezzoli, and Wimmer, 2005), and the requirements of the systems they are embedded within (Arai and Shimomura 2004, Burger et al. 2011, Baek 2014).

One strategy to create mutual benefit for stakeholders is a value exchange. For example, Yang, Rana, and Evans (2013) developed a value analysis model (VAM) for generating symbiotic PSS solutions through value exchange in an industrial context. The model provides a new approach to resource management by considering one's redundant or surplus resources as having potential value for others. Adopting this approach, opportunities exist for stakeholders to exchange redundant resources with the resources of others. Yet it is challenging to identify intangible resources which was defined as 'functional relationship' or 'usable and serviceable to human beings' (De Gregori, 1987). This type of resource includes intellectual, knowledge, information, human etc. (Diefenbach, 2006). As sometimes the intangible resource is not recognized or even devalued as a potential resource compared to tangible resources, it is also difficult to identify opportunities for service exchange (Yang, Rana, and Evans 2013). The resource exchange approach would thus benefit from stakeholder involvement to identify opportunities for value exchange during the design process. This is because stakeholders have expert knowledge of the detail of their own challenges and related issues (Meroni, 2007), generating their own viable solutions. However, building a symbiotic solution through value exchange requires collaborative ways for stakeholders' to become actively involved in the design process. However, stakeholder active participation may successfully build upon stakeholder agreement in the service ecology. As stakeholders have different perspective and stakes, their needs are also very different. In this respect, a co-design approach is considered useful for generating symbiotic solutions as it combines various views from individuals with different perspectives (Bradwell, Marr, and PricewaterhouseCoopers 2008); harnessing a mix of multidimensional skills for mutually beneficial solutions (Mukaze and Velásquez 2012). In this regard the value exchange model may be applied to PSS (Product Service System) or service design as a useful strategy for creating symbiotic solution.

However, in the current approach to the model (Yang, Rana, and Evans 2013), there exists a lack of detail in how to involve stakeholders even though stakeholder participation is positioned as significant. To facilitate the application of the VAM model in the workshop with stakeholder, co-design method can be very useful as it provides generative supportive tools which make participants easier to be involved in the co-design process. Therefore in this study, we propose a co-design methodological model based on a value analysis model. It is a model facilitating stakeholders to be involved in the co-design process, from value exchange to symbiotic solution development. We call this approach, 'Value based co-design model' (VCM). As such the current study aimed to address the following research question: How do we engage stakeholders in co-designing symbiotic solutions using the value exchange model?

To address this question, a case study of the application of VCM was conducted and analysed to both further assess its appropriateness as tool for co-designing symbiotic solutions and its ability to provide increased value exchange.

Principle of Value exchange

The concept of value exchange, originating from ‘industrial symbiosis (IS)’, is defined as “a collective approach for the physical exchange of materials, energy, water or products’ among industries (Chertow, 2000, p. 313)”. Frosch and Gallopoulos (1989) argue that companies can obtain mutual benefits through value exchange because the waste or surplus from one company may be needed by another. Yang et al. (2013) suggest that companies can also achieve a higher value while obtaining more socially and environmentally sustainable systems through resource sharing. For validation, they adopt value analysis to develop a PSS which aims at facilitating the re-use of industrial wastes by matching needs and wastes of the firms in an industrial ecosystem. In this system the wastes, including not only physical waste but also intangibles such as information, knowledge and labour, are considered as surplus values which have their own value adding capacity rather than a literal physical waste. The Figure 1 shows a model of the process of a value analysis.

The process is divided into internal and external value analysis. Internal value analysis is composed of value waste analysis and needs analysis. Value waste is described as a surplus indicating redundant value which is larger than the requirement (e.g. under-utilised resources, over capacity of labour). On the other hand, value need is the need for the waste product of a potential recipient. As seen in Figure 1, internal value analysis aims to identify value waste and value need on both product and service sides. External value analysis is a process of analysing value waste and needs among different companies based on their individual internal value analysis. The approach aims to identify opportunities for value exchange among companies through a need-resource matching process (Yang et al., 2013). Through this process, the opportunities of value exchange are found and needs and values matched.

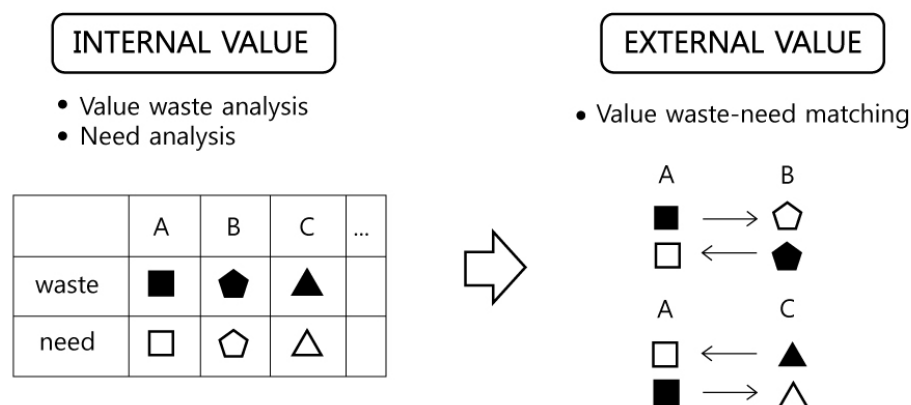


Figure 1 Process of Value analysis (Yang et al., 2013)

Method

The Value based co-design model (VCM) follows the process of the original model (Yang et al., 2013) but there are certain variations in facilitating the participation of stakeholders during the design process. Also, the construct of resource has been widened to extend to the opportunity for value exchange (i.e., we consider the capacity of stakeholders or the available resources around them as surplus value). These resources have the potential to be utilized directly and indirectly in a value exchange. We thus collectively refer to these as these 'resource'. Not only the resource stakeholders own, but also those accessible and available to them are within the scope of the definition. In VCM, resource and needs are extracted from various angles in that the symbiotic value can be created when the resource and needs are properly matched. Moreover, we adopted several design tools and applied them within the co-design process to facilitate non-designer participation. They include: resource cards, need matrix, stakeholder dialogue, and system map.

Tools for VCM

The resource toolkit used in the case-study was designed in the form of cards to facilitate ideation between stakeholders and improve focus upon available resources. Generating and expressing ideas may impose a burden upon the participants who may not be familiar with the design process. Therefore, the toolkit adopted gamification to intrigue participants into co-designing activity more actively and in an engaging way (Oliveira & Petersen, 2014). The gaming approach also aimed to provide certain information related to resources so that participants could be provided with a better understanding of the available resources and how they may best be utilized. The resource for value exchanges collected included from multiple sources: interviews with residents, databases of local infrastructure and heritage, and site visits.

The collected resources can be largely classified between tangible, intangible and human resources (Grant, 1991; Tukker & Tischner, 2006). Tangible resources include natural resources and man-made artefacts; intangible resource includes social, cultural, technological resources; and human resources include individuals' labour, talents, and capabilities. Information about each resource, i.e. characteristics of the resource, problem or need it had, were collected and synthesised into the resource cards. Figure 2 illustrates an example of resource cards. Each card shows the image of a resource on the front side and its description on the back side.



Figure 2 Resource cards

Stakeholder need matrix aimed at identifying the stakeholders' needs as a holistic picture in a systemic way, providing directions for needs identification between stakeholders (Figure 3).

		Stakeholders								
		S ₁	S ₂	S ₃	S ₄	S ₅	S ₆	S ₇	S ₈	S ₉
Stakeholders	S ₁	N ₁₁								
	S ₂									
	S ₃									
	S ₄									
	S ₅									
	S ₆									
	S ₇									
	S ₈									
	S ₉									

Figure 3 Need matrix (Baek, 2014)

The needs matrix consists of axis X and Y, with stakeholders positioned against the two axis (e.g. axis X: producer, consumer, contributor; axis Y: producer, consumer, contributor). Thus the matrix aims to identify needs between and towards stakeholders. Their needs were identified according to the direction in the matrix filled with stakeholders in the system. In Figure 3, 'N₁₁' is the need of stakeholder X towards stakeholder Y (Baek, 2014).

Stakeholder dialogue provided opportunities for all stakeholders to give advice or express their opinion upon towards solution from the multiple perspectives and diverse knowledge bases (Wahl and Baxter 2008). To handle these differences, the conversation between stakeholders is significant (Manzini, 2015). It is critical for generating symbiotic solutions as symbiosis can only be achieved through comprehension and agreement between stakeholders.

For concept development based on value exchange, the system map is used. The system map is a process of mapping the components in the system, with mapping usually drawn according to stakeholder groups (Segelström, 2010). It also shows the flow of resources within the stakeholders' network. Adopting this system map can be useful in concept development in that the symbiotic solution needs to be considered through a systemic view with consideration for various stakeholders.

Process of VCM

The process of VCM is composed of two sessions from value exchange perspective: Resource and need analysis, and need-resource matching (Figure 4). Resource and need analysis is conducted through source collection & analysis stage, and need-resource matching is done and evolved through concept generation and concept development stage. During the source collection and analysis stage, needs and resources are collected before and during a co-design workshop and analysed. First collection of the data related to users' needs, problems and resources are collected prior to the workshop and become input for the generative toolkit to be used during co-design. The data is collected through interviews and surveys with stakeholders. The resources in the region are then identified and stored as a database using interviews and desktop research. Second data collection of additional needs and resources is conducted in the workshop through stakeholder dialogue. Compared to the

first collection, this is more specified to participants' personalized experience compared to initial data collection which is more general needs. The needs are additionally collected and organised by using need matrix tool. After collection, the needs are clustered according to their similarity. In concept generation stage, the collected resources and needs are matched based on the need clusters. In concept generation and development stage, the resource toolkit is utilized for conceiving the ideas towards need-resource matching. With matching process, the concept ideas are elaborated and developed into a system map.

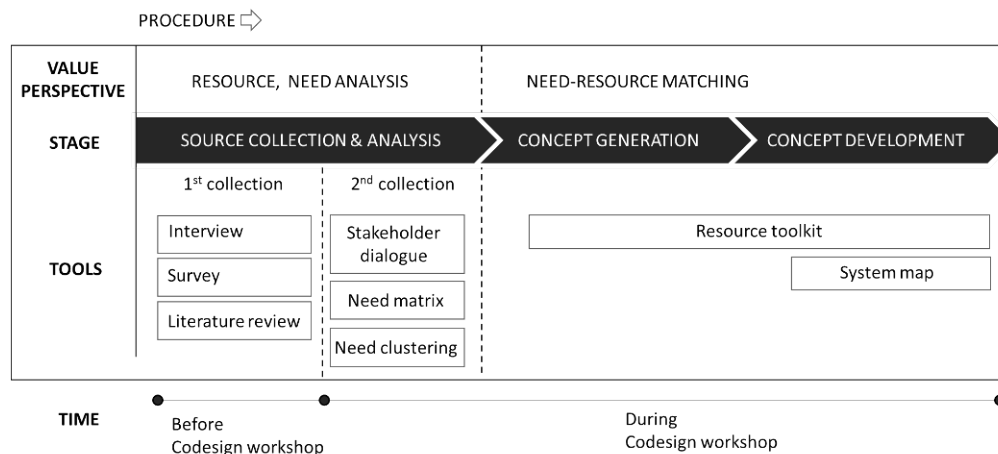


Figure 4 Process and tools for VCM

Model application

The Value based co-design model was applied to a workshop to promote sustainable food production and consumption in Ulsan, South Korea. The aim of the workshop was to develop community enterprise models in the form of PSS. Prior to the workshop, the project team conducted a preliminary investigation on the perception of the local food. Through interview and survey, the problems in the production and distribution were collected from producers; those in administrative support from officers in the local government; those in sales from distributor; and those in food purchasing process from consumer. The resource analysis was also conducted to identify potential resources in the region including their characteristics, needs and problems. Tangible resources identified in the case were local firms, local productions, farm land, administrative agency, agriculture training centre, community centres, community business centre, and direct trade market; Intangible resource included an online platform, social media, delivery service, application, community, enterprise, etc.; Human resources included local producer, public official, housewife, retail dealer, etc. The collected data was then developed into the resource toolkits including the information of available resources such as need, problem and characteristic as seen in Figure 2. These toolkits were then used to drive the idea generation during the co-design workshop.

The workshop involved various stakeholders such as consumer, producer, entrepreneur and administrator. There were four stakeholder teams consisted of different stakeholders, with the design process conducted respectively within each team. In the workshop, stakeholders discussed their stance and arranged their needs on the needs matrix as seen in Figure 3. Designers helped them to fill in the matrix while adding the needs driven by preliminary research. After arranging the needs on the matrix, stakeholders were asked to cluster those

which were associated to one another. Thus, needs were clustered to identify the relation between needs and find opportunity for need-resource matching.

The needs were matched with resources on the consideration of how the value could be exchanged between stakeholders. While matching the needs and resources based on the need and resource analysis, the ideas were generated. As seen in Figure 5a, resource toolkits were actively used to match with relevant needs. In addition to the existing resource cards, participants were able to create their own resource cards if necessary and use them during the concept generation. The participants described resources in blank cards with text and visual information.

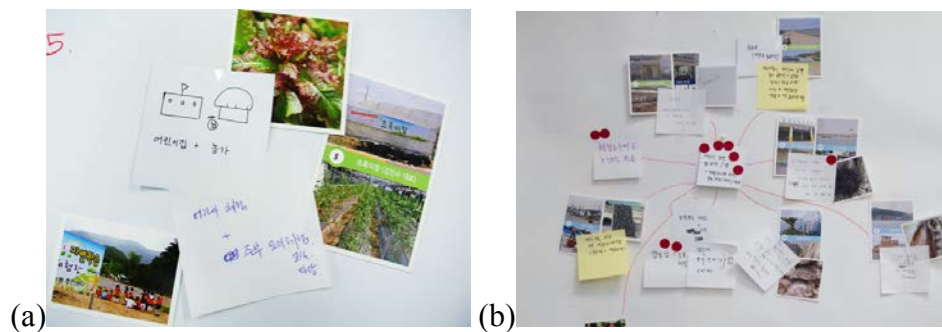


Figure 5. need and resource matching (a) and idea selection through voting (b)

To develop the ideas into combined ones, an approach to choosing the ideas was needed. Among the ideas based on value exchange, participants voted for the best ideas using stickers as seen in Figure 5b. The concepts were then further developed focusing on the main ideas which had the highest score. Based on matching the needs and resources, the ideas were combined and developed into a system. The idea generation was activated by using the resource toolkit and developed in a form of system map.

Results

In VCM, value exchange is a core concept to generate symbiotic solutions. For that, needs analysis becomes the starting point for finding the opportunity and resource analysis facilitates participants' ideation. The following section describes how the participants were engaged in needs and resource analysis, and concept generation and development during the value exchange process.

Need analysis

To find opportunities for need and resource matching, the participants were encouraged to identify the needs according to the need matrix and then cluster collected needs according to the similarity. It was found that the need clusters sorted by participants showed several patterns such as (1) common needs; (2) associated needs; (3) symmetric needs.

Common needs indicated the same need which stakeholders shared. As an example, the common need between producers was mutual exchange of farming related information or knowledge. Common needs were normally derived from the same stakeholders but even different stakeholders had common need. For instance, an example consumer needs was to

obtain appropriate knowledge of organic foods and producer's need toward the consumer also was that the consumer had a better understanding of organic food to promote their consumption. Like this, the different stakeholders could also have common needs even though the motivations of different stakeholders were often different.

Associated needs include the needs which are different but associated by some common theme. This pattern of need cluster was most frequently observed. For instance, consumer's need toward producer was diversity of agricultural produces in small quantities and producer's need was additional labour for selling product in diverse and small quantities. In this case, the common theme was diverse product in small quantity; another consumer's need toward producers was learning farming knowledge through experience while producer's needs toward consumers were activating farm tours. Their needs could be clustered around common themes of farming experience.

Symmetrical needs indicate the similar type of needs heading for each stakeholder. For instance, consumer's need toward producer was getting credible information of organic produces and producers' need was to obtain information about what the consumers' needs might be. As such, both stakeholders' needs were related to certain information which their stakeholders had.

Resource analysis and need & resource matching

In the ideation session for need and resource matching, participants were first encouraged to find the resource for direct exchange between stakeholders as approach for fulfilling each other's needs, based on the collected resources. For instance, producers wished to obtain useful agricultural information and were able to provide their own farming experience and knowledge as intangible resources in exchange. On this, stakeholders could exchange their resources from actor A to B in a direct way.

Some ideas were related to outsourcing resources because the stakeholders did not have capable resources to fulfil other stakeholders' needs. For instance, consumers had a need to buy various products in small portions, but producers could not have extra labour to fulfil their needs. In this way, the producer's need for labour was matched with the labour resource of elderlies, relieving them from their boredom in their village life. Producers gained value through a reduction of their burden of labour by outsourcing the bundle making job to elderlies in the neighbourhood. In this case, elderly people were engaged to procure a resource in need. There was another case of indirect value exchange through other stakeholder engaging in the same process of needs matching. For instance, there was a producer need for labour for a farm tour program. A student labour was derived as resource for this in that students were required to do community service obligatorily. In terms of value exchange, the need of the students was satisfying through credit. Producer did not have appropriate resources fulfilling student's academic need but the public certificate from administrative office was derived as alternative resource which had be value for the students. Local government has an authority to certify student community service and were willing to do it as it had common need with producers to activate local food businesses.

Concept development

We introduce two out of four concepts developed as the result of the workshop. The first concept from the workshop is entitled Neighbouring Farmers. There are three stakeholder groups exchanging values, consumer, producer and elderly people. It is a food box delivery service which periodically offers the harvests of local producers to neighbouring consumers based on subscription. In this community, the social media become medium enabling the producers more fluently communicated with their consumers so that they know their consumer's needs better; in the meanwhile, consumers were provided more information from producers or instantly provided feedback about their products. The produces are sold in a form of bundle package and the need of producers about labour for bundle making jobs was fulfilled by the elderly people nearby them. The elderly people provided their labour resource while obtaining the value of earning some profits and enhancing self-esteem. The community also involved several local producers and it becomes the platform where they could collaborate and exchange useful information.

The second concept is entitled, Farm mentoring centre, a mentoring platform providing consumers with producers' knowledge and farming experience. There are four stakeholder groups exchanging values, consumer, producer, local student and local government. This community consisted of several producers and various educational contents utilizing producer's own know-how and experiences for a farm tour program. The target group of mentors ranged from children to adults who were interested in farming or organic food. In this community, the capacities of local university students were used as useful resource. The need of producers to develop contents was fulfilled by local university students' unions, which had the capacity to develop contents and the need for extra farm tour labour. The university students participated as developers and helpers for mentoring and farm tour programmes. In return they received certain benefits for their service such as monetary profits or a certificate from local government which is helpful for earning credit in the university. Local government achieved its purpose of activating local food businesses by supporting the contributing participants. In addition, the farms made profits not only through the mentoring and farm tour programme, but also from the direct transaction of local food on the farm.

Discussion

The case study applying VCM has indicated how the PSS (Product Service System) solution idea was generated and the concept was developed based on value analysis. We discuss the benefits and effectiveness of VCM in terms of engaging stakeholders in co-designing symbiotic solution and the implications of its use.

Needs analysis as a means to discover opportunities for value exchange

Analysing stakeholders' needs becomes the base of discovering opportunity for value exchange. The needs matrix is characterized as a way of arranging needs considering directional aspects as whose needs towards whom, while the conventional way of need analysis (McKillip 1987) identifies one's need without much consideration of the directional aspect of the need. Through application, adding directional aspects in need matching was

shown to be beneficial to identify the interrelations between needs and find the opportunity for value exchange.

The association of needs were clustered as followings: (1) common needs; (2) associated needs; (3) symmetrical needs

These associated needs became the bases of ideation for resource exchange. In the case of common needs having the same purpose, it was revealed that participants were likely to find the opportunity within themselves and counterparts. In the application, the common needs were directed toward the same stakeholder. One of the examples was the producer and producer's needs for obtaining beneficial information from farming. The ideation for value exchange started from this associated needs and the opportunity was found between the stakeholders themselves, having rich information as potential resource. The associated needs with different purposes enabled participants to think about other sources from which they might obtain other resources. For instance, there existed a consumer's need for diversity of agricultural produces in small quantity and producer's need for labour for selling product in diverse and small quantity. Even though they had common theme of 'product in diverse and small quantity', there was a lack of capacity to fulfil these identified needs. Therefore the opportunity was likely to found from other stakeholders. In terms of symmetrical need, consumer's need for credible information of production and producers' need of consumer's need information were identified. Both stakeholders' needs related to sharing information were, in this way, directed towards one another. This symmetry provided an opportunity to think about exchanging resource between the stakeholders so that they were better able to fulfil their respective needs.

In these three types of associated needs, opportunities for value exchange were found. To fulfil these needs, the exchangeable resources were searched and sometimes the appropriate resources were found within the stakeholders. In this way, value analysis through VCM provided greater opportunities to understand how to generate the idea of value exchange by revealing the opportunity through identification of interrelation of needs between stakeholders.

Resource analysis as a means to facilitate stakeholders' ideation for value exchange

In VCM, the resource collection is critical in that the value exchange process depends on the identified resources. The resource was additionally collected in the need matching process and it determined which and how the values were exchanged. In this value exchange, two means of exchange, direct and indirect were identified. In direct exchange, two actors provided benefits to one another as A gives to B, and B to A while indirect exchange referred to instances of exchange where actors gave benefits to another and eventually receives benefits from another, but not from the same actor (Molm, Collett, & Schaefer, 2007). In our case study analysis, the most frequent means of exchange was identified as direct resource exchange.

In the ideation session for need and resource matching, participants firstly attempted to identify the resource for direct exchange between stakeholders in a way that best fulfilled each other's need, based on the collected resources and needs. However because of the limited resources, it appeared a challenge to exchange every resource in a direct way. If the

resource could not be exchanged in a direct way, further ideation for appropriate resource and need matching was required.

During the workshop, the resource toolkit was used to facilitate ideation by providing visual references for a resource pool. Not only the one prepared by the design team before the workshop, but also the resources added by the participants. The resources varied in types ranging from cultural, human, and physical resources. This process allowed the design team to harness the “knowledge of details” specific to time, place and events that are only available to the owners of a problem (Murray, 2009). The participants’ comments after the workshop reflected the effectiveness of the toolkit in its ability to facilitate ideation. After the co-design workshop was completed, we conducted surveyed asking about how the methods influenced their ideation. All of the participants gave comments that the visual material made ideation easier and facilitated them to come up with new idea. Participants’ qualitative responses were classified as followings: As the reasons, 32% of participants said that they could articulate their ambiguous idea into concrete one by watching the specific resource images; 13% stated they could find the new resources which they did not know before; 10% said that they could come up with new idea which they had never been thought. 6% of participants mentioned that they could derive more specific and realistic idea by utilizing available resources provided in the toolkit.

Integration of ideas into a PSS concept as a means to create mutual benefits

In VCM, the separated value exchange ideas are integrated and represented using system mapping. For instance, in the case of Farm mentoring centre, there was a value exchange between producer and consumer; producer and student; producer and local government; local government and student. Likewise, there were various needs from different stakeholders but they were combined in a symbiotic way creating mutual benefits. In that a symbiotic solution is built upon stakeholders’ collaboration, the integrated concept needs to be developed with consideration of the stakeholders’ collaboration network in a system.

Developing a PSS concept using system mapping enabled stakeholders to think about how they could play a role as a resource provider and also as a receiver in a system. The system map was useful not only in defining and describing the role of stakeholders but also describing what values are exchanged by them and how within a system to achieve a symbiosis. With the consideration of the mutual benefit of stakeholders and the service context, the value exchange ideas became elaborated and developed in a symbiotic way.

The implication of VCM

VCM is positioned here as a means to provide opportunities for co-designing of symbiotic solutions. The reason that mutually beneficial solution is challenging is because of the complexity of needs from various stakeholders. As such, VCM could be beneficial in handle those relationships by adopting the concept of value exchange. In this, the approach affords useful insights into how the various needs and resources of stakeholders could be integrated into a PSS producing mutual values. VCM also indicates ways of identifying opportunities for value exchange through in-depth need and resource analysis.

In terms of application, the value based design model is applicable to any service design or PSS design model which intends to build symbiotic relationship among stakeholder in a way that best provides mutual benefits. Social design area solving local problems in a symbiotic way is one example of the potential of the approach in a relation based service such as collaborative service (Meroni, 2007).

Conclusion

We suggested the Value based co-design model (VCM) as a co-design process for facilitating stakeholders to generate symbiotic solution producing mutual benefit. We introduced the means by which symbiotic solutions based on intensive need and resource analysis may be generated while engaging stakeholders' active participation. Through our presentation of a case study adopting the VCM approach, it was shown how participants were engaged and develop their ideation. Through resource and need analysis by using toolkits, they identified the needs and found the opportunity to match appropriate resource. The need-resource matching also facilitated them to develop concept. VCM systematically analyses needs and resources for value exchange by providing new perspective on resource exchange. Therefore the practitioners can uncover the potential resources for value exchange and create new economic, social, and environmental value.

However in applying VCM to our co-design workshop, there were some limitations. It was observed that some stakeholders already had some idea in their mind at the beginning of the workshop and adhered to their own idea rather than generating totally new idea. Even though the generative toolkits facilitated participants' ideation, some participants' fixed idea disrupted the development of more novel ideas. Methodologically, because ideation was based upon limited resources, value may be exchanged unfairly. If the exchanged values are considered unequally, it could decrease stakeholders' motivation to take part in the service system (i.e. high burden of labour vs. small amount compensation). Also, there appeared to be a lack of validation of this model as current assessment regarding effectiveness of applying the model relies on participants' subjective feedback.

For the further study, we expect to conduct more case studies of the application of the VCD approach and examine the efficacy of the model. The model could be more elaborated and developed through further applications.

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Knowledge brokers in service design: lessons from organizational studies

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Abstract

With service design taking increasingly strategic and transformational roles, effective organizational partnership and engagement has become crucial. However, since organizational communities are structured and function differently from social communities, participatory service innovation methods like co-design need to take additional factors and different strategies into account for effective engagement and participation in these settings. We draw from discussions in organizational studies to highlight challenges with regards to engagement in innovation processes within and across communities in organizations. Further, we look at knowledge brokers, a concept that features prominently in discourse in this area and outline it theoretically and through a strategy of application in co-design settings. Hence, we contribute to the current service design discourse by adding insights to both theory and practice. Finally, we describe the application of this strategy in two exploratory case studies with differing scales in terms of both the service being designed and the nature of participation from organizational communities.

KEYWORDS: service design, knowledge brokers, co-design, design legacies, organizational studies

Introduction

The scope of service design projects is expanding rapidly from the design of product centric service ecosystems to the design of business and organizational practices (Daniela Sangiorgi, 2011; Martin, 2009). This is also having an impact on the nature of the service design practice itself, which has evolved from being focused on improving efficiency in the methods of production to involving strategic dimensions around value propositions, considerations around the back-end and the front end of the service and a focus on the overall experience as it relates to the business and the brand (Newbery and Farnham, 2013).

This requires a holistic understanding of services during the design process by integrating perspectives both from the consumption, production and business sides through cross functional collaboration for more strategic service innovation (Möller et al., 2008).

Consequently, service design projects regularly involve co-design methods and practices (Marc Steen et al., 2011) including workshops with consumers and external users as well as with organizational partners. This is attributed to the importance of utilizing cross functional expertise and multiplicity of perspectives allowing for innovative and cross functional solutions that address the root cause of issues (Roser et al., 2009) and the identification of opportunities in unseen areas of a service's ecology rather than cosmetic solutions that address just the consumer side of things (Möller et al., 2008). Hence, with the increasingly strategic nature of service design, effective organizational partnership and engagement has become crucial. However, organizational communities act and work differently than social and institutional communities (Wenger, 1999) and therefore, participatory service innovation methods like co-design need to take this factor into account for these settings. We have found that while organization studies has a rich history of studying models of engagement and co-operation and its impact on innovation within organizational communities (Brown and Duguid, 1998; Franke and Shah, 2003; Wenger, 1999), the discussion around the impact and possible ways of working with these communities in service design and co-design has been limited. The concepts of knowledge brokers (Wenger, 1999) and boundary objects (Star and Griesemer, 1989) feature prominently as channels within the organizational studies discourse (Kimble et al., 2010). Out of these, boundary objects have been used to describe the use of tools in co-design settings and in service design to discuss engaging and involving users with differing functional expertise (Brandt and Messeter, 2004). However, there has been little discussion around knowledge brokers and their potential impact in these scenarios.

This paper presents observations and reflections from two cases that describe co-design workshops that were conducted in the early stages of the service design process. Both these cases differ in terms of scale of the service being designed and the nature of participation from organizational communities. The authors were invited into the process as a part of a longer engagement with an institutional department to develop tools and methods intended to introduce design considerations and methods within its existing practices. These cases present early results from our ongoing investigations into outlining an approach for creating sustained organizational engagement and motivation towards design methods and practices. Hence, while we wanted to identify service opportunities and strategies in each of the cases involved, a broader research goal was to study the effects of our methods, tools and approaches on the nature of engagement and exchange in these settings.

Background

Co-design emphasizes the role of tools to support users/non-designers in the act of creative ideation and expression. Sanders (2000) describes them as “generative tools” - open ended artefacts that can take two or three dimensional forms and can be configured into “an infinite variety of meaningful ways” for meaningfully and visually representing ideas and shared understandings. Within service design contexts, co-design is typically conceptualized as an innovation process driver where participants collaborate on a shared problem using their own unique functional expertise and perspectives mediated through shared tools designed to provoke and promote communication and creativity (Marc Steen et al., 2011; Sanders and Stappers, 2008). This process becomes especially valuable in the design process because of its ability to catalyse innovation through knowledge sharing and communication across functional and boundaries of practice (Marc Steen et al., 2011).

Participants in a co-design process reach a point of agreement by deliberating over each other's points of views and subsequently reaching a commonly agreed end result. However, this cross functional exchange also creates difficulties of effective communication and collaboration and therefore co-design processes are typically facilitated by designers using contextually relevant tools that act as boundary objects between communities involved in the activity. Boundary objects, described as objects that embody shared meanings and are of

interest to each community involved (Brown and Duguid, 1998), help clarify the assumptions and attitudes of each community to others involved and to themselves as well (Buur and Mitchell, 2011). Moreover, they are also known to enable reflection and second degree learning within communities engaged by them (Brown and Duguid, 1998).

While boundary objects serve as effective tools for engaging non organizational participants, we argue that the co-design process needs to consider additional factors when being conducted in an organizational setting. Wenger (1999) describes organizational communities as separate from social or institutional communities because of being built around shared practices and also conceptualizes organizations as “constellations of practice”. By virtue of being situated within organizations, these communities have their own shared ways of working, communicating and more often than not, an understanding and realization of the design process. Junginger (2015) has also discussed this as a challenge from a service design standpoint and argues that design practices and methods, “however flawed they might be”, are deeply embedded in all organizations since they need to deliver some kind of service or product. Factors like differing levels of acceptance for the design process and the presence of design legacies (Junginger, 2015) within organizations can have a significant impact on the level of engagement and communication facilitated by designers and consequently the boundary objects both of which could be seen as external to the organization. Hence, processes working within organizational settings need to account for these shared practices and design legacies specially when working across boundaries, as in the case of service design. Literature within organizational studies discusses similar issues in the context of knowledge exchange and cross collaborative innovation (Franke and Shah, 2003; Kimble et al., 2010) and proposes the concept of knowledge brokers in addition to boundary objects as an additional channel to facilitate communication and engagement across communities.

Introducing Knowledge Brokers

Wenger (1999) defines brokering as a “process of translation, co-ordination and alignment between perspectives. It also requires the ability to link practices by facilitating transactions between them.” Brown and Duguid (1998) apply this concept in an organizational context by identifying knowledge brokers as people who “participate in the practices of several communities” and hence open up possibilities of meaningful exchange and deliberation between them. They also suggest that knowledge brokers are true participants in the communities they are a part of and hence are invested in the consequences of any exchange they facilitate.

Additionally, Mayer (2010) argues that brokering is a combination of differing practices including making knowledge contextually relevant by scaling, appropriating and disseminating. Hence, the act of brokering is not a simple act of transfer but rather an act of transformation and translation (Carlile, 2004). The knowledge broker does this by creating a common language that all communities can understand, use and engage with. Mayer (2010, p. 119) also observes that brokering tends to happen in specific spaces that “privilege” it to happen and takes on differing shapes and forms based on the spaces and communities involved. Therefore, we see co-design processes as natural spaces that lend themselves to brokering by virtue of being exploratory spaces designed for cross functional collaboration, knowledge transference and deliberation.

The differences in the nature of brokerage and its expected functions is further discussed by Boari and Riboldazzi (2014) who propose a brokerage typology based on Gould and Fernandez's (1989) brokerage relations and suggest that differing roles can be adopted by the same person depending on the time and context (see Figure 1). The roles are that of the coordinator, where participants and the broker are from the same community; the representative, where one participant deliberates over exchanges with “outsiders”; the gatekeeper, where the broker acts like a link between outsiders and members; the liaison, where the broker is an outsider who links communities together during exchange and deliberation; the cosmopolitan, where a member of a community acts like a broker between

members of other communities. Further, they suggest that brokers add value by making the participants from the involved communities aware of the interests and issues faced by all others, increase process approachability and relevance by drawing contextual analogies and lastly synthesize broader patterns from the community specific elements from the discussions. Considering that the typology of brokering is primarily driven by the nature of communities the broker is interacting with, we suggest an understanding of the communities participating, their structures and the participant's roles would help identify the nature of brokering that would be needed during co-design. Further, we also recommend transitioning natural knowledge brokers within and/or amongst these communities into brokers in design settings and partners in the design of activities and tools.

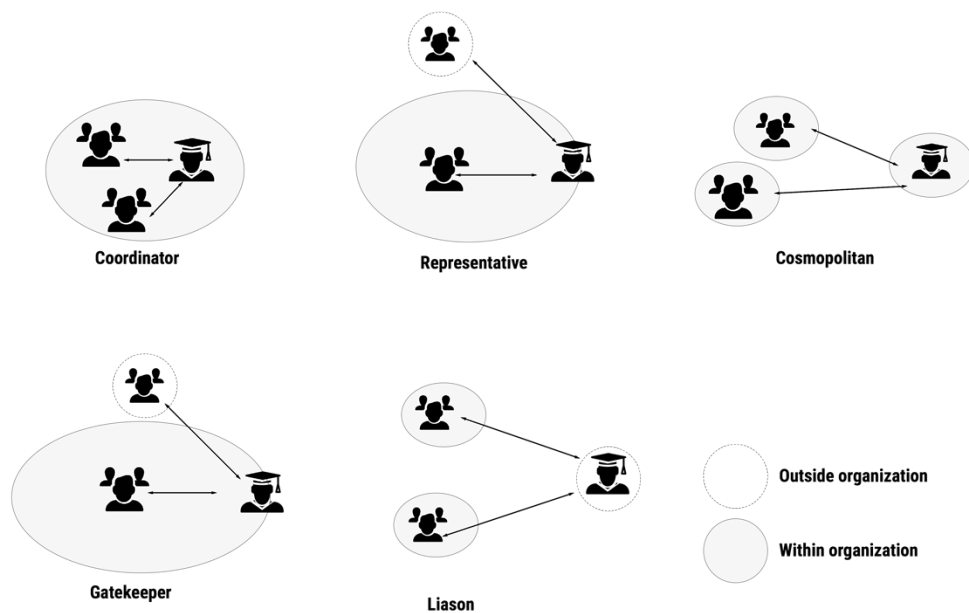


Figure 1: Five types of knowledge brokers and community relations

As discussed above, while service design is increasingly being recognized as a strategic driver for organizations little has been written addressing the unique challenges an organizational setup may offer (Junginger, 2015) and strategies for working with these challenges. Through this paper, we therefore aim to address the challenges that arise due to the practice based legacies in an organizational setup and offer a possible strategy that could help translate and appropriate service design methods and practices for these settings. To do this, we borrow the concept of knowledge brokers from organizational studies, where, in contrast, the discourse on cross functional collaboration and innovation across boundaries is very rich and bridge this concept with service design methods and practice. Hence, we contribute to the current service design discourse by adding insights to both theory and practice in the service design discourse.

Case Studies

This section describes two cases where co-design workshops were conducted in the early stages of the service design process. Though these workshops present results from public organizations, we think our results would be valid even in the context of private organizations. This is because the conceptualization of an organization as a 'constellation' of communities with shared practices and ways of communicating and understanding design methods, would be applicable for private organizations, even though their practices might be more malleable than what we have encountered. The two cases outlined here present two different contexts for evaluation - one where all participants were members of a single

department within an organization but came from different branches and the other, representing a larger scale project, had participants from different departmental disciplines from an institution along with external participants as well. However, both of these workshops were conducted early on in the design process to identify learnings from the existing service delivery mechanisms and channels involved, explore possible opportunities and constraints and outline a shared vision for new service development and redesign.

The workshops consisted of a series of design tasks structured to evoke exploration and discussion and organized so that each task would build on the outcome of the former. Open-ended tools were used in each workshop to aid communication and exchange. However, while both the workshops consisted of extensive exploratory deliberation and ideation resulting in outcomes of various forms, we describe select tasks and the broker's role within those design tasks for the sake of greater clarity with respect to ideas presented in this paper.

Case 1: Informational services redesign for the library at an academic institution

The goal of this project was to identify possible opportunities and areas of change in a service redesign exercise for the information and support services at the University of Oslo's academic library. We were invited to run a workshop by the library leadership aimed at defining the brief and vision for the overall project. The leadership by extension became an early point of contact for getting an understanding of the context of the project and practices of the community which helped us shape the tools needed for this exercise. Interpreting this from the knowledge broker typology discussed earlier, the role of the leadership was initially that of a gatekeeper (i.e. a link between community and outsiders). Since in this case, all the participants involved belonged to the same community, we tried to identify knowledge brokers for playing the coordinator role (i.e. where the participants and the broker are in the same community) for the workshop. As discussed earlier, based on our strategy of transitioning natural brokers into these roles, members from the community playing leadership roles were identified as brokers because we felt brokering coordination would act as an extension of their day to day practice dealing with inter and intra-team coordination and management. The broker in this scenario was expected to provoke discussions amongst participants and translate the design tools and intent.

Before the workshop, setup meetings were conducted with the leaders (who were also acting like brokers) where the role and intent of the tools was explained and the goals of the workshop deliberated upon. Based on these discussions, the initial goals of the workshop were collaboratively expanded and detailed further. Four primary areas of investigation - user identification, service opportunities, requirements and perspectives and consequently, four design tasks - service ecosystem mapping, user journeys, constraint mapping and perception mapping were defined.

The workshop was conducted with twelve participants from different branches of the institute library including two library leaders playing a broker's role. These participants were split into two groups of five with one broker in each group. The workshop started with the exploration of the service ecosystem and while the process was explained to the participants through a small example and a interactive demo by us, the brokers in each group explained the process further by providing contextual analogies from technical and content maps which formed a part of the participant's routine practice (see Figure 2). Not only did this help get the participants started but also allowed them to draw from their own personal experiences and apply them to gain richer insights. Additionally, it helped them see a process level analogy and possible ways in which the outcome from this task could inform the subsequent tasks. For example, one of the groups decided to expand the scope of a touch point's access channels, an internal web-page in this case, to incorporate remote access scenarios along with localized usage as well. This consideration directly fed into the user journeys created and the constraints mapped for the touch point. While this was a macro level translation and transformation of the design intent to make it more relatable, we also

observed that the brokers clarified thoughts and questions on much more micro level as well within each task. We think that these micro translations represent a much closer approximation of their day to day practice and hence was a role they adopted naturally without any deliberate intervention or suggestion from our side. Consequently, this allowed the participants to engage more freely in more meaningful exchanges. Finally, they also prevented ideas from getting lost in discussions and filtered out by actively taking notes and provoking relatively silent participants to contribute.



Figure 2: Ecosystem map developed by participants

Case 2: The design of support services for a new departmental building at the University of Oslo

The goal of this ongoing project was to identify the nature, scope and possible functions of a support service for a planned building which would house various disciplines within the life sciences department of the University of Oslo. We were invited to assist with the project by the core driving group for the upcoming building, who, like in the previous case, took on the gatekeeper's role. They helped us get an understanding of the context of the larger project, the nature of communities involved as stakeholders, open questions that needed to be explored and getting a co-design workshop set up with these stakeholders. Since the context of the project was situated in the future, the project involved looking at current support service usage patterns within the institute and visualizing probable futures by building service scenarios. In this case, since the participants involved in the workshop came from different departments and with highly varied functional expertise, project expectations and acceptance of the design process, the ability of the broker to understand and translate exchanges and ideas across different disciplinary boundaries was considered critical. Hence, we opted to involve participants playing cross disciplinary support functions in their practice, in the broker role. We felt such participants would be a natural fit for the role of a cosmopolitan broker (i.e. a member of a community acting like a broker between members of the other communities), since it seemed to be an extension of their practice. We identified subject librarians for this role instead of the leadership because of their day to day interactions with the disciplinary department members involved and their natural role in knowledge support functions for them. Hence in this case, it can be seen how multiple partners can adopt varying knowledge broker roles based on the context and participating communities.

Like in the last case, during the setup meetings, the goals, tools and tasks for the workshop were deliberated upon. We also tried to identify possible participants from the library who could take the broker's role. We realized that subject librarians participating in the project had been involved in hands on design methods seminars earlier and hence had a basic familiarity with the process. Since one of the authors had also been involved in the design of

tools for the seminars mentioned, we decided to make use of this familiarity by building on the tools from the seminars. The librarians nominated for the broker role were also invited for subsequent setup meetings and four primary areas of exploration were decided upon - present service scenarios, future service requirements, attributes and strategies. The tasks finalized were - service discovery, card sorting and ecosystem mapping for understanding the current support services, ecosystem mapping for functional areas in the new building, future user journeys, scenarios and touch point analysis, architectural discussions and constraint mapping.

The workshop was conducted at two locations over the course of two days with twelve participants from four departments including three participants acting like brokers and a representative from the architectural firm involved in the project on the second day. The first location was next to the area where the new building was being planned and the second location was in the existing building that houses the library and the departments that some of the participants worked in. The participants were split into three groups of four including one participant acting as the broker in each team. The workshop started with a session on identifying the channels and nature of support in three different buildings housing various departments. This was followed by a group debrief and a mapping of the service touch points and attributes the participants had encountered using images taken by the participants and cards created for a card sorting exercise (see Figure 3). In this case, the importance of brokers became apparent right from the start where participants in two of the teams, who came from different fields and practices, showed little engagement and motivation in these exploratory tasks. The brokers, in this case, besides playing a translational function, took a motivational and demonstrative role as well. We share a few examples from the initial phase of service discovery and mapping. During the service mapping task, the brokers pushed the participants to explore different touch points by creating possible scenarios of usage that they had to consider. We think that subject librarians, by virtue of being involved in knowledge support functions in practice, could extrapolate from experience and visualize scenarios which were grounded and real. Further, during the debrief and the card sorting exercise, when the participants tended to break into subgroups and de-link the discussions and insights from the cards and did not engage with creating a visual collage, the brokers started to take these insights and linked them back to specific cards and started to classify them in categories and attributes based on accessibility and aesthetics. This provoked the participants to start collaborative discussions over the details of the visual collage and naturally deliberate over insights that linked back to the collage as a common point of reference. We could also observe how these tools mediated and translated by the brokers started to create a common language and reference point for the other participants in the group. Hence, besides offering analogies and highlighting topics for discussion and noting down the outcomes, in this case, the brokers acted like demonstrators by engaging with the tools fully and highlighting the design intent and value through action and helping create motivation and a common language for deliberation.



Figure 3: Deliberations over card sorting

Discussion

We introduced the concept of knowledge brokers for service innovation processes in an organizational setup and demonstrated how it addresses the challenges posed by existing design legacies in such contexts. The results of this exploration can be summarized around three main areas of insights, all of which attempt to bridge theoretical considerations from organizational studies and observations from service design practice. These are:

- » Identifying knowledge brokers
- » Partnering with knowledge brokers
- » Brokers, boundary objects and service designers

Identifying knowledge brokers

Knowledge brokers in an organization function at the boundaries of varied forms of expertise and practices facilitating the meaningful exchange of ideas between different professionals and/or departments. The identification and direct involvement of individuals already familiar with working at these boundaries proved very helpful for the service design team. Usually within organizations, there aren't clearly identified roles solely for knowledge brokerage but as discussed earlier, different kind of professionals assimilate various forms of brokerage into their daily practice which could relate to management, strategy, support etc. They function as a bridge or as communicators between different expert groups during the course of their daily practice. Firstly, they were aware of the extent of domain understanding they needed to be able to function as knowledge brokers between organizational communities. Secondly, they actively contributed to the process of tailoring the co-design tools and tasks to be used in the workshop, according to the communities the participants were members of and the overall goals that we were working towards. They were instrumental in informing the service designers about the existing work practices or design legacies that could potentially influence the project at hand, which helped in informing and engaging the participants with the tools and tasks of the workshops by working with language and methods the participants were already familiar with.

Partnering with knowledge brokers

The pre-sessions with the knowledge brokers before the actual workshop proved pivotal for this success of the cases described. They helped us shape clearer goals and identify appropriate tools and methods for the context we were going to be working with. These sessions also gave a background and understanding of the intent of the design activities to the broker so that they did not need to interpret them directly during the workshop. For example, in the first case, one of the goals was to propose concepts, implementable within organizational constraints. With this background in place in conjunction with their understanding of negotiable and non negotiable library process constraints, the broker was able to highlight and encourage participants to think about constraints from experience, helping them orient themselves towards more realistic solution. For a service designer alone this would have meant evaluating every constraint identified by the team along with feasibility issues with the design concept itself.

Brokers, boundary objects and service designers

Out of the five roles described for knowledge brokers (Boari and Riboldazzi, 2014), in the scope of the cases we describe, three roles - the "coordinator", the "gatekeeper" and the "cosmopolitan", were clearly observed. The definition and expectations from the roles was completely driven by the context and an understanding of the participating communities in the workshops. The leadership played the gatekeeper role by helping us get a broad understanding of the nature of participant's practice and possible risks with respect to participant engagement in both cases. In the first case, the leaders were invited to participate

in the workshop as coordinators since all the participants were from the same department and we expected the broker role to be an extension of their practice. In the second case, subject librarians were invited to be cosmopolitan brokers between members of multidisciplinary departments because we expected it to be an extension of their support and mediation centric roles in practice.

We observed that brokers helped appropriate the tools, translate their intent and role in the overall process and in the second case, helped create engagement and involvement around the tool itself. Hence using the tools in conjunction with the broker in each group helped create a common language for deliberation and exchange. However, we should highlight that there could be a risk of information bias and filtration on the part of the broker which should be addressed in both the pre-workshop sessions and the workshop itself. In our case, we (the service designers) tried to mitigate it further by becoming overall facilitators and managers in the workshop while also acting like shared or floating members and using the expertise of knowledge brokers for localized translation, engagement and appropriation.

Conclusion and future work

In this paper, through two cases from different service design exercises, we show how organizational members acting like natural knowledge brokers in their daily practice were identified and partnered with. Further, we demonstrate how this helped us elicit greater engagement and participation from the organizational communities involved in our service design projects and overcome potential challenges that could arise due to inter and intra community work and communication practices or design legacies. We also demonstrate that the nature of knowledge brokers needed for different exercises differs based on community and context. Future work on this topic would address additional brokerage roles in newer contexts and a more thorough evaluation of the relationship between boundary objects and brokers in workshops. Additionally, the long term impact of being design mediators in multiple settings on the broker's practice could also be an interesting area of exploration.

Acknowledgements

The authors are indebted to all the workshop participants for their participation and the university library for supporting the projects. In addition, we would like to acknowledge the National Library of Norway for providing funding support through the Library UX project.

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Facilitating service interactions with design games

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Abstract

It is argued that design for service aims at creating an “action platform” for service interactions to occur. Service research in the field of marketing, especially the perspective offered by Service Logic, highlights the importance of service interactions in facilitation of value creation processes of customers. Recent perspectives in the field of design, similarly, recognize the importance of user contributions during the use of an offering arguing for the completion of design by the user in-use. Therefore, this paper recognizes two modes of design in-use: *co-design in-use* and *independent design in-use*. Focusing on *co-design in-use*, this paper recognizes service interactions as a platform for *co-design in-use*. Further, it examines the facilitation of such interactions with design games through the presentation of two case examples focused on coaching service offerings. *Co-design in-use* differs from co-design events before use as it involves the actual users of an offering in absence of professional designers.

KEYWORDS: service interactions, co-design in-use, co-creation of value, facilitation, design games

Introduction

The increasing involvement of non-designers in design process has made the facilitation of design process an important new role for design practitioners and researchers. This facilitation of co-design activities aims at leading, guiding and providing scaffolds for participants’ creative expressions and making capability (Sanders & Stappers, 2008). One of the tools utilized in this context is design games (Brandt, 2006; Brandt & Messeter, 2004; Vaajakallio & Mattelmäki, 2014). For example, design games have been utilized for facilitation of cross-disciplinary collaborations in participatory design processes by improving idea generation and communication between participants (Brandt & Messeter, 2004; Johansson, 2005). Design games, also, set the stage for sharing current and past experiences among co-design participants and enable them to envision future scenarios (Vaajakallio & Mattelmäki, 2014).

Co-design events (Brandt, 2001; Brandt, Johansson, & Messeter, 2005), in which design games are utilized, typically take place during design processes preceding the actual use of the design solutions. Sanders and Stappers (2014), as well, position design process prior to the point when designs are put into use. Their framework, therefore, does not recognise the potential of (co-)design outside of the official designer-run design process. Two prevalent perspectives may have contributed to this. One is the notion that designers (in collaboration with selective invited non-designers in the case of co-design) are the main agents in the act of designing. The other is that the designs themselves, as outcomes of the design process, are complete when the design activity of the design team is completed. Both perspectives are deeply rooted in a product-centric understanding of offerings. However, there are emerging views that consider design fundamentally unfinished until used. For example, Kimbell (2012), taking a practice-oriented perspectives on design, emphasizes the notion of incompleteness of design outcomes until use. In her perspective, design does not end when design process ends, but continues and gets completed by the user(s) in-use. This emphasis on the completion of design in-use is akin to the recent value creation discussions in the field of service marketing (Grönroos & Voima, 2013; Vargo & Lusch, 2006) arguing for the creation of value by the user(s) in-use.

Service research in the field of marketing has emphasised the importance of user participation in service production through concepts such as “inseparability” and “co-production” of services (Chase, 1978; Fisk, Grove, & John, 2008; Mills, Chase, & Margulies, 1983; Zeithaml, Parasuraman, & Berry, 1985). In fact, many service offerings cannot be fully designed before their use, as they are highly dependent on the inputs of their individual end users. This is especially true for the service offerings that help individuals develop a desired set of capabilities and skills over a period of time with the assistance of a coach. In such cases, it is impossible to have a readymade and predefined service solution that fits all. Thus, the service providers of such offerings meet individual service users for gaining an understanding of their circumstances, personal goals, interests, capabilities and needs. Only then, a developmental plan can be co-designed together with the recipient of service. This type of co-design occurs in-use and in absence of design practitioners or researchers. This is different from the co-design in-use described by Botero and Hyysalo (2013) or Johnson, Hyysalo and Tamminen (2010) extending the dialogue between the design professionals and users beyond the traditional design process into use-time allowing a continuous co-design or modification of an existing solution.

This paper attempts to recognize the importance of service interactions as a platform for co-design in-use during the offering of service. It also explores whether co-design tools such as design games can be useful in facilitating such interactions between service providers and customers in absence of design professionals. Given the attention service research in the field of marketing has paid to service provider-customer interactions, this paper first gains an understanding of such interactions through the lens of marketing with a special focus on the Service Logic perspective. Second, recent perspectives in the field of design recognizing the importance of user contributions to design are briefly reviewed and connections are made to the perspectives of Service Logic distinguishing *co-design in-use* from *independent design in-use*. Third, to better understand how design games can facilitate *co-design in-use* during service interactions, two case examples are examined. Finally, after presenting a summary of the themes observed in the documented game sessions and the conducted follow-up interviews, the key characteristics of *co-design in-use* and the required facilitation, as seen in the presented examples, are discussed.

Service interactions through the lens of marketing

Service research in the field of marketing has long recognized the importance of customer participation in production and delivery of service offerings. The perspectives offered in this regard are nowadays viewed based on their goods or service orientation. This paper focuses on the customer-centric, service-oriented views of Service Logic (Grönroos & Gummerus, 2014; Grönroos & Voima, 2013) after a brief review of earlier provider-centric, goods-oriented perspectives.

User participation in service provision became a focus area in service marketing because in contrast to goods, service offerings were deemed “inseparable” (Fisk et al., 2008; Zeithaml et al., 1985). This meant that unlike product offerings, the production and consumption of service offerings were viewed to occur simultaneously without any separation in time and space. Therefore, service offerings were considered co-produced with the customers. This made customers an essential participant in service operations. As these earlier views were more provider-centric, there was a concern over the impact of this user participation on the efficiency of the operations run by service providers. Therefore, an early approach to address the uncertain consequences of service co-production was to limit customer interference in the provider’s processes (e.g. Chase, 1978). Another approach was to consider customers as “potential employees” of service organizations whose productive contributions to service co-production could be motivated, guided and managed (e.g. Mills et al., 1983). Numerous forms of self-service schemes, such as airline self check-in and various forms of automated retail, are examples of this line of thinking that lowered operation costs of service offering through the engagement of customers in serving themselves. This attention to the “productive efforts” of service users can also be seen in the concept of co-production introduced in the field of public policy and administration (e.g. Ostrom, 1996; Parks et al., 1981). In recent re-introductions of the concept of co-production, citizen engagement in co-design in addition to service production and delivery is emphasized (e.g. Boyle & Harris, 2009), however, governance and logistical/feasibility drivers remain as main motivations for citizen engagement in co-production (Bovaird, 2007; Joshi & Moore, 2004).

In the recent value creation discussions in the field of marketing, Service-Dominant (S-D) logic and Service Logic (SL) perspectives emphasize the importance of interactions in creation of value. Instead of separating offerings into products and services on the basis of their physical attributes, both perspectives focus on the service received and the value (co-)created by the customers in-use. In both views, the user plays a significant role by not only determining the value in-use, but also (co-)creating this value (Grönroos & Gummerus, 2014; Grönroos & Voima, 2013; Vargo & Lusch, 2008; Vargo, Lusch, Akaka, & He, 2010). While the interactionality of value creation in S-D logic is implicitly expressed (Vargo & Lusch, 2008), customer-provider interactions in SL, divided into two categories of direct and indirect interactions, play important roles in value creation. In SL, value is created by the customer in-use and the provider is a facilitator of this process (Grönroos, 2008, 2011). Direct interactions, considered as the only avenue for providers to take part in co-creation of value with the customer, are defined as “joint processes where two or more actors’ actions merge into one collaborative, dialogical process. The actors can be human actors or intelligent systems and products” (Grönroos & Gummerus, 2014, p. 209). During indirect interactions, however, “one actor, such as a customer, interacts with a standardized system or product. No merged collaborative, dialogical process occurs, and therefore, the other actor, such as a provider of such resources, cannot actively influence customers’ value creation” (Grönroos & Gummerus, 2014, p. 209).

What distinguishes the SL’s view of customer-provider interactions compared to the earlier concepts in service marketing, such as co-production, is that SL defines these interactions in

terms of their facilitatory role in support of the value creation processes of the customer as opposed to the benefits the provider might gain as a result of the customer's productive contributions in service provision. Looking more closely at the value creation of customers can shed light into the importance of customer-provider interaction during self-development service provision.

(Co-)design in-use through the lens of design

In recent years, design literature has increasingly recognized the importance of use and user activities in-use. Redström (2008) distinguishes between the design activities “before use” and “after design” characterizing acts of defining use before the actual use (for example through potential user involvement in prototyping) as “use before use” and the acts of design that occur in-use of an offering after design (for example, modification or redesign of the offering by the users) as “design after design” (p. 421). Ehn (2008), consequently, distinguishes between participatory design that attempts to “design for use before use” and meta-design that aims at “design for design after design.” For Ehn, “meta-design” recognizes the possibility of a chain of subsequent independent design activities in-use by unforeseen users after an earlier design activity during a design project lead by professional designers. Therefore, meta-design views every use situation as a potential design situation that can be facilitated through the infrastructure provisioned at project time. This attention to “infrastructuring” in “meta-design” is similar to what Manzini (2011) describes as “action platforms” in “design for service.” Manzini suggests that a service with all its interactions cannot be fully designed; what the design outcome creates is “an action platform [...] that makes a multiplicity of interactions possible” (2011, p. 3). Both “meta-design” and “design for service” recognize the importance of what occurs in use and view the role of a primary designer-lead design process as one that facilitates subsequent user activities in-use. In this way, the SL concepts of indirect interactions and the facilitation of user's value creation processes through the resources provided by the provider find commonalities with the aims of “meta-design” and the “action platform” of “design for service.”

Kimbell's (2012) pair of concepts of “design-as-practice” and “designs-in-practice,” also, foreground the importance of use and user activities offering a different way of understanding the activity of design. “Design-as-practice” de-centers the design professionals as the main actors in design activity by recognizing other actors such as the employees of service organizations as well as customers and end-users who constitute what design is through their practices. “Designs-in-practice” highlights the notion of incompleteness of design outcome and process and the notion that there is no singular design as the user, “[t]hrough engagement with a product or service over time and space, [...] continues to be involved in constituting what a design is” (Kimbell, 2012, p. 136). Therefore, combining this perspective with SL, one could identify two modes of design in-use: *co-design in-use* and *independent design in-use*. *Co-design in-use* involves both users and providers in designing during direct provider-customer interactions. This occurs in joint sphere of value creation in SL framework. *Independent design in-use* is the involvement of end-users in completion of design in-use through their indirect interactions with the resources provided by the provider. This occurs in the customer sphere of value creation in SL framework. Redström's (2008) “design after design” falls into the second category. This article focuses on the first category, i.e. the service interactions that can function as *co-design in-use* events.

Two examples of (design) games for service interaction facilitation

The following two examples serve as test beds for the investigation of service interactions and the role of design games in facilitation of co-design in-use. The examples are based on a collaboration between master's level service design course and an organization that provides coaching and support services to youth who are outside education and working life. The design brief the two student teams received were open-ended with the aim of empowering the youth served at two separate units within the collaborating organization. The students were asked to study the activities and the people (both providers and customers) in each unit and engage them in the exploration and co-design of potential solutions that would serve their needs.

Example one – breaking the ice

The first team, in collaboration with the staff and participating youth at one unit's activity centre, proposed a solution that followed the framework of design games. The challenge faced by the staff at this unit was that the youth were either too shy or seemed reluctant in sharing personal thoughts and stories. The staff also faced difficulty in motivating the youth to give feedback on activities held at this unit. This was important to the staff as they felt the youth's input would help them better plan and organize future activities.

After observing the youth and interviewing the activity centre staff and a number of youth who had taken part in the unit's activities, the student team identified the need for helping the youth in developing their communication skills in group situations. Therefore, as a design solution, the team aimed at creating a playful and safe environment through the use of a board game. This board game was called "Oletko Kartalla?" or "Are you on track?" (see Figure 1). The game aimed at lowering the communication barriers faced by the youth and encouraging them to get to know each other through sharing personal stories and interests. This was achieved through the game mechanics of taking turns, throwing a dice, advancing one's game piece on the board and answering a question, read by the next player, from one of four colour-coded themes matching the colour of the position on which the player's game piece has landed. The themes in this game were selected based on the typical topics discussed with the youth at the activity centre. These themes included Sports & Nature, Cooking & Living, Arts, Crafts & Music, and Travelling & Culture. Another aim of the game was to learn about the interests, favourite activities and routines of the youth and help the staff members in planning future activities with the youth based on the information uncovered from the youth while playing the game. This game was the result of two design iterations that engaged both the staff members and the youth representatives in testing game prototypes and providing feedback and suggestions to the design team.



Figure 1 – "Oletko Kartalla?" board game. Copyright 2013 by Brecht Vandevenne.

Example two – a systematic check-up

The second team worked with a unit that supported youth reintegration in the society through one-on-one coaching aimed at helping the youth in finding their path to employment. This team, also, ended up with an interactive game as their design proposal. The game was called “Qué pasa?” or “What’s up?” Focusing on the one-on-one coaching sessions held between a career coach and a youth at this unit, this game guided the conversations during the coaching sessions through a number of themes graphically represented on cards. Also, three card categories of challenge, achievement, and wild cards encouraged the youth in settings challenges and goals in relation to each theme (see Figure 2). The themes selected for this game were inspired by a list of key dimensions of participation in society discussed in an article on reintegration of veterans in the society (Resnik et al., 2012). The overall aim of the game was to support both the youth and the coach in their coaching interactions through the facilitation of their learning and reflection processes and supporting them in co-identification of their next course of action. The challenge and achievement cards also allowed them to set challenges and acknowledge achievements through tangible cards the youth could collect. Similar to the first game, the design of this game took into account the input received from participating staff and youth in co-design and feedback sessions.



Figure 2 – “Qué pasa?” game sample cards (challenge, achievement, and wild cards) and card themes. Copyright 2013 by Sarasati Kushandani.

The trial of the (design) games in-use

Since both service units were eager to implement the games, a follow up study was set up to document and understand the impact of use and incorporation of these games into the practices of the service units involved. Both units conducted a number of trials of the games with clients who were not involved in the initial design process. Post-trial interviews of the participating staff members were conducted to get a sense of how the games worked in practice. The staff members were also asked to record the participating youth’s opinions on the games after each trial.

The documented game sessions and the interviews were first studied by both authors of this paper individually and then discussed in order to analyse the gained insights. The analysis was supported by the extensive research done by Brandt (2006) and Vaajakallio (2012) on the use of design games in co-design events. The following depicts the two main themes observed in the use of the games presented here. The first theme highlights the qualities of the (design) games as a facilitator of dialogues. The second theme emphasises the collaborative exploration, sense making and co-planning facilitated by the game and the

coach. The themes are demonstrated with quotes from the documented game sessions and follow-up interviews.

Magic circle, Play, and Game rules

In her research, Vaajakallio (2012) proposes three perspectives for experiencing design games: as a tool, a mindset, and a structure. As a tool, design games helps to organise a dialogue and support empathic understanding of the participants. As a mindset, it aims at creating a temporary atmosphere for the players called a “magic circle” (Huizinga, 1950) and as a structure it aims at facilitating interactions between the participants. A “magic circle” is a “physical and ideal playground with a special ordering of time, roles and rules” (Vaajakallio & Mattelmäki, 2014, p. 69).

These elements are most visible in the first game, “Are you on track?”, where several youth played the game with an activity coach. The ideal playground created by the game presents the youth with a fun and safe environment where they can practice and learn new social interaction skills without the fear of negative consequences. One activity coach recalls being surprised at the level of laughter during the game and the other shared his perspectives on how the game acts as an ice-breaker:

Coach 1: I think there was some funny questions and I think there was some laughter and like some funny stuff that don't come up so often in our group maybe

Coach 2: Yeah, it broke the ice so to say! [...] Because I think [...] every one of us would like to tell something about ourselves to [an]other person; like to tell who we are; why [we] like this; what we love. But for [...] many of these young persons, it's very hard to tell. For example, being bullied in school so they don't open their mouth in a group. That's why they are here; why they are not in a school or in a working place. I think one of the biggest reasons why they don't talk is that especially when [they] talk about themselves, [...] they might [be] afraid that if they give something out of them, something personal, someone might attack to them. That would be a very big bit, so I think the game creates certain security that it happens ... there are these limits in this game, so I can tell something about myself. It happens in this game and there are rules in this game, [...] but I think it's a good thing.

Similarly, the comments written by the youth after playing the game confirms the creation of a “magic circle” and fun atmosphere by the game. When asked if they recommend playing this game in future sessions, the response was positive. Here are few sample responses from the youth:

Youth 1: Playing was quite nice and relaxed. It was fun that it was easy to discuss with others with the help of questions and answers. In the beginning, I was a bit nervous

Youth 2: Yes, the game helped throwing oneself in the conversation.

Youth 3: With the help of the game, it was easy to talk with others and spend time so that would be sensible [to use the game in future sessions].

Youth 4: I think the game is good for situations with many newcomers. It might work as a kind of an icebreaker between us. Why not on other occasions as well – those topics are not necessarily discussed very often, so the game is a nice way to get to know more about each other.

As Brandt (2006) suggests, game rules such as turn taking can have a levelling effect for participants giving each player equal opportunity to take part in playing the game. This also breaks the existing hierarchies that may exist between a coach and the youth giving the youth an equal footing in interactions with the coach. This presented the coaches with a new

scenario as the youth got the opportunity to pose questions written on the question cards to their coaches when it was their turn to play.

Coach 2: what we think what was new [in the game interactions] was usually when we are in a group, [...] youngsters talk to us when we ask something, but it's very rare that anyone would ask something from us... like someone would ask us [...] how are you? What do you like? or what is your favourite? ... so-and-so. It's very rare, so even though we think that they might be interested to know more about us, [...] usually never so that they would ask [...] so we're not so in different levels [during playing the game] that brings us closer also.

Holistic exploration and co-design in-use

Both games provided tangible game pieces and tasks that touched upon different areas of life. Especially in the second game, “Qué pasa?”, the themes indicated on the cards enabled a systematic examination of various elements in the youth’s life. In addition, guided by the game rules, the placement of the theme cards on the table created a visible and concrete representation of the youth’s life. This enabled both the coach and the youth to take a holistic view at the youth’s capabilities, challenges and desired achievements in relation to selected themes. Having a designed space for writing on the cards invited the youth to add their own notes allowing them to reinterpret the topic at hand and reflect on their circumstances. The coach played an important role in asking the right questions, guiding and facilitating the youth’s reflections. In addition, the ease of moving the cards around on the table and pairing them enabled both the coach and the youth to create links across the themes and gain new perspectives into underlying causes of some of challenges faces by the youth. Here is an excerpt from the trial of the second game demonstrating this process of exploration, reflection and co-design in-use.

Coach 3: You mentioned that you have learned skills to help you with being in contact with friends. How would you define this friend card? Are there challenges concerning friends. Time for an example!

Youth 5: For example, travels – some [friends] live further away; in other countries. To me also social media is important. Through, it is easier to be in contact with those far away; I don't know!

C3: “To live far away?” and that you “keep contact with some” (the coach helps the youth in thinking about what to write down on the card). Are there changes coming up?

Y5: But you needed to write a challenge [on the card]! All the friends don't live that far, but many do.

C3: So it is good to have foreign friends! How do you keep contact?...in English?

Y5: English and Swedish. Regularly. Mostly in writing. [it's] easier to write [because of] time differences.

C3: How do you evaluate your [English] skills? Can you write fluently? (Y: yeah) Could you link this with your job seeking? Or finding your own field? Could you look for a job in where you could use English?

Y5: I could. For example, in a place where there are foreigners. serving foreigners. In here, (pointing to a card) we could add languages (C: Sure, good!)

C3: Sure, good! What could be next?

Y5: Maybe this- (taking a card)

C3: What interests you at the moment? E.g. hobbies? What would interest you the most?

Y5: Free time. I could put [on the card] what I have studied and how I apply those skills in my free time. (an issue that was raised in earlier discussions)

The coach's feedback on the trial of the game underlined his appreciation for the way the game facilitated reflections and systematic examination of important issues in the youth's life. What the coach found positive about the game was that despite knowing the youth for some time, the game allowed them to focus on issues, gain a holistic understanding of several areas in need of attention in youth's life and create new links that allow them to address unresolved issues with a new perspective.

Coach 3: we just know the youth and then we talk with him and the game gives us a more systematic tool to discuss about it in a way we just don't discuss about it during our meetings because we just focus on some topics. [...] When you like get more systematic insight from those topics, so you can make the new links and then you realize that okay maybe this is what we have to do for the next time.

The service interactions in this coaching context aim at finding solutions that help the youth in taking steps toward a good and independent life in the society. The coach gently seeks possibilities in which the youth can be supported and helped. It is, however, the youth who should eventually take the responsibility in taking the steps toward change. During the game session, the coach probes potential avenues around sensitive topics and poses questions in order to trigger reflections rather than pointing at specific solutions. It is easy to recognise that there is much more understanding, professional competences and history underlying the exchanges than what is said aloud in the actual dialogue. Although the game was co-designed following the principles of design games, the presence of designers for facilitation of the game session is not needed in this type of coaching services that the examples represent. The designed artefacts, i.e. the game pieces and rules, aid the professional practitioner in the coaching process of seeking, sense making, and at best co-designing a better future with the youth.

Coach 3: [...] these are the issues we are working with everyday, so... and with the person we think we know, but it is easy [...] to concentrate on certain topics and if you play the game, you can always get some new insight from there. like [in] the first session I have with the girl and there was this health card so [s]he didn't want to discuss about that at all, and I knew that!

Coach 3: [...] it definitely helps to realize that what is the life the whole life situation. What are the topics avoided, and what are those he is comfortable speaking in the way he is maybe talking about those.

As seen here, the coach's role in facilitating the session with the help of the game is crucial. The knowledge the coach has of the history and the background of each youth, guides the coach in steering conversations in a way that triggers thinking and activates reflection in the youth. This would have been difficult to achieve if the youth were to play the game individually. A comment by another youth, participating in the game trial, emphasizes the importance of carrying a dialogue with the coach while playing the game.

Youth 6: You need two people for this game. If I had this game in front of me, I would have not had [any] thoughts.

Discussion and future research

As stated earlier, the engagement of potential users in co-design and the application of design games in facilitation of co-design interactions and process have mainly been studied and discussed in before-use design contexts. An example could be a service design process that concludes before the implementation and eventual use of the design outcome. While design for service typically involves the (co-)design of various touch points of service provider-user interactions as part of service journeys, what is (co-)designed is merely an “action platform” (Manzini, 2011) that enables and facilitates eventual service interactions in-use. This is inline with the recent views on design practice that consider designs unfinished until used (e.g. Kimbell, 2012) highlighting the importance of user input and activity in constituting what the offering becomes in-use. As seen in the review of Service Logic literature (e.g. Grönroos & Gummerus, 2014), service interactions also serve as a platform for co-creation of value with the service users allowing them to affect the service offering, for example, through their involvement in co-designing the offering for themselves in-use. An extreme example for service offerings with such characteristics is coaching service offerings where clients are expected to interact with coaches and engage in facilitated learning, reflection and self-development.

We believe that contexts such as coaching offer a fruitful platform for examining how designer contributions to design for service (before use) can create “action platforms” for supporting service interactions, facilitating the user and provider efforts in co-design in-use, and positively impacting the experience and quality of service. All of these, arguably, lead to a better value co-creation by the participants. Therefore, this paper highlights the need for diving deeper into service interactions as the context for co-design in-use. However, as each service context presents itself with its own unique characteristics and sensibilities, care must be given in applying the findings to other contexts.

The two examples presented here were our first attempt at observing the role of design games as action platforms for facilitation of service interactions and co-design in-use. These examples focused on service settings where professional coaching aimed at triggering reflections, mutual learning and co-design of action plans for positive developments in the clients’ lives. The follow-up study demonstrated key differences in the facilitatory role design games played in this context compared to typical co-design events during a design process before use. One key difference was that the participants in these service interactions were the actual service users who were there to improve their own conditions. Unlike typical co-design events (before use), these participants did not need to imagine the lives and use scenarios of other users out there. Neither were they required to step into the shoes of these imagined others. Instead, the first objective of the games was the break the ice by creating a safe, trusting and non-judging environment where each participant would feel at ease volunteering personal thoughts and experiences. Therefore, instead of facilitating their ability to imagine the world outside of their immediate experiences, the games aimed at helping them see the world within, re-examine their personal experiences, and gain awareness of their own patterns of behaviour before they could imagine different approaches and future practices to follow. Another difference, as highlighted in the second game, was the key role of professional coaches in this process. The personal nature of arriving to a developmental plan required the facilitator of such co-design in-use sessions to have more knowledge about the client’s life. This allowed the coach to better steer conversations and trigger self-reflections and thoughts in the client.

The analysis of the service interactions in these cases and the feedback received from the participants strengthened our views on the importance of co-design in-use during service interactions. Further studies are needed to examine other forms of co-design in-use and the

types of facilitation the design for service approach can offer. Understanding the facilitatory roles of designs in support of value creation processes of the service users will also shed more light into this topic.

Acknowledgements

We would like to thank the two student teams who designed the games discussed in this paper as part of their course project at Aalto University. The “Oletko Kartalla?” game was designed by Abir Iqbal, Linda Kokkonen, Seungmin Lee, Katri Ollila, and Brecht Vandevenne. The “Qué pasa?” game was designed by Mikko Hynninen, Ahrum Jeon, Koert Jobse, Kristiina Juurmaa, and Sarasati Kushandani. Also, we would like to thank all the coaches and youth participating in the trials of the games sharing their personal experiences. Without their invaluable contribution, this study would not have been possible.

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The role of Design as a critical friend to the Voluntary Community Sector

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Abstract

This paper presents one of the key findings from a recent Doctoral inquiry into the relevance and applicability of adopting a Design for Service (DfS) approach to effect transformation in Voluntary Community Sector (VCS) contexts. The research used case study method, reflective practice and content analysis to establish that the use of design at a systemic level of a VCS organisation could incite transformational change. The paper reveals that the stakeholders' initial trust in the designer is more important than their trust in the DfS approach (methods and processes), which becomes crucial to increasing the influence of design in the organisation. Once the designer becomes a 'friend' to the organisation, they can operate at an embedded level as a 'critical friend', which allows them to challenge the status quo and create new organisational perspectives. The paper finally presents a 'critical friend' model depicting how design can be used to effect transformation in such settings.

KEYWORDS: design for service, transformation, critical friend, charity, public services

Introduction

Following the global financial crisis of 2008, The UK's Coalition Government signalled its intention to radically reform public services (HM Government, 2010). Their drive to reduce public spending, decrease inefficiencies and decentralise provision (HM Government, 2010) has had a significant impact on VCS organisations offering such services, creating increased competition and a purchaser-provider relationship with the state (Needham & Carr, 2009). Similarly, the reform has also focused on enabling user choice creating a customer-provider relationship between VCS organisations and their service users (Needham & Carr, 2009, p. 3). The sector is therefore faced with the challenge of meeting these altered expectations of the services they deliver, how they are offered, as well as how they are funded.

Even for those VCS organisations not involved in public service delivery, the recent volatile fiscal climate has also had a considerable impact on VCS organisations' capacity, with a decrease of 70,000 staff across the sector (Clarke, Kane, Wilding, & Bass, 2012). Despite this, charities are also trying to respond to a sizeable increase in service demand; 67% of VCS organisations surveyed reported an increase during 2012 (Oakley Smith, Bradshaw, & Lewis, 2012). As a result, the sector is trying to meet a rapidly rising demand for better, more personalised services with no resources to meet the demand.

With a continuation of the crisis predicted, it is imperative for the VCS to transform their service offering and its delivery mechanisms, rather than merely cost-cut. As organisational change models are often incompatible with the specific pressures placed on VCS organisations (Kellock Hay, Beattie, Livingstone, & Munro, 2001, p. 252), new approaches are needed if the sector is to enact internal change at a rate that matches the scale of external change.

Recent studies exploring the value of service design approaches to organisations have identified impacts desirable to VCS organisations at present, including: *improved customer experience* (Hollins, 1993); *distinct service offerings* (Meroni & Sangiorgi, 2011; Steen, Manschot, & De Koning, 2011); *connected, cohesive systems* (Bate & Robert, 2007; Mulgan & Albury, 2003); *community ownership of ideas or resources* (Freire & Sangiorgi, 2009; Han, 2010; Manzini, 2010); *efficiency savings* (Design Commission, 2013, p. 35; Design Council, 2010, p. 3); and *shifts in organisational strategies and cultures* (Gloppen, 2011; Junginger & Sangiorgi, 2009).

However, the majority of design research to date has focused on the private and public sector, with few studies into the role that design could play in the VCS. Although there are similarities between the current needs of the VCS and many private and public sector organisations (for example, the need to provide efficient, effective services during times of extreme financial pressure), the purpose, values, governance, culture and funding of VCS organisations differ enormously from the other sectors. There is therefore a need to rigorously identify and evidence any potential value that design can offer in this context.

A recent doctoral inquiry by the primary author (Warwick, 2015) has attempted to address this by exploring the value of a DfS approach to VCS organisations looking to redesign existing or develop new public services. It found that the outcomes of using design in a sample of VCS organisations were:

- » Financial gains (design directly supported the organisations to secure £1.2 million in funding and was used as evidence to secure a further £1.5 million)
- » More customer-focused services (each charity developed new service(s) that were still in use 12 months post-collaboration and that they had changed the way that they engaged with their customers);
- » And organisational learning (two of the charities made changes to their policies and processes).

Predictably, some of the research's findings build on existing knowledge within the Design community, such as design's ability to create more customer-focused services. This study has verified this existing knowledge in a systematic and rigorous way. However, it has also extended the contexts in which this can be claimed, which is of significant value for both practitioners and educators.

The understanding of precisely *how* the Design community and VCS community can work together presents new opportunities for the readers of this work. The study extrapolated that

the DfS approach and the designer should operate as a ‘critical friend’ during initial engagements with a VCS organisation, in order to see such outcomes. Positioning the design process and the designer as a ‘critical friend’ in a charity allows their influence to permeate beyond the systems level, to the policy level of an organisation, resulting in a transformational impact (Warwick, 2015).

This paper will discuss how this role was identified and why it is of particular value at a critical time for the sector. Finally, it will present a model that depicts the key stages required to operate as a ‘critical friend’ in a VCS organisation.

Methodology

There have been no explorations of the use of design in a VCS context to date (Warwick, 2015, p. 13), thus it was necessary to build knowledge of its potential value through the active application of design. Action Research (Lewin, 1946; McNiff & Whitehead, 2011) and an exploratory case study (Yin, 2003) were selected as the focal research methodology, allowing knowledge to be gathered from the VCS context in a manner that could generate practicable theory.

The DfS approach was used in three VCS organisations, which were considered as three cases in a multiple-case case study structure (Yin, 2003); Charity A; Charity B; and Charity C. Each VCS organisation chosen as a case had to be a registered charity or other formally constituted VCS organisation with an income from charitable activities between £100,000 and £1 million per year; an indicator that an organisation will be at risk as statutory support diminishes (Voluntary Organisations’ Network North East, 2011). They also had to be currently offering, or have a contract to offer public services, and looking to evaluate, change or expand these in some way in the future, in order to undertake design activity in the time restraints of the doctoral study. The three charities also had to have differing charitable aims and customer bases, in order that the DfS practice was not guided by any previous engagement, as is required by the Action Research approach (Lewin, 1946, p. 38; McNiff & Whitehead, 2011). The three organisations, along with a brief description of the collaborations’ aims, are described below:

- » *Charity A* is a local organisation that is part of a UK federation, hereafter named Network A. They provide mental health and wellbeing services across three boroughs in North East England, many of which are on behalf of a local council. In this project setting, the designer (Author 1) was asked to help the organisation consider what services they should provide in a new geographical area.
- » *Charity B* is also a local charity registered with a national federation, hereafter named Network B. Operating in one borough in North East England, they provide a variety of community education services to all ages. In this project setting, the designer was engaged to help the organisation improve its earned income, particularly focusing on how it could improve its membership system, which offered discounts on fitness, arts and children’s services to the local community.
- » *Charity C* is a national charity based in North East England. Their mission is to engage children in reading and they offer a variety of services, both directly to the public and through educational institutions, which address this aim. Here, the designer helped the charity to consider the experience that their services provided and how it could be improved to better meet the aims of the organisation.

In each of the three charities engaged in the study, the designer worked with a variety of stakeholders; staff and volunteers who administer services directly to clients; middle management; and executive leadership. Each collaboration, conducted in serial, lasted two months in order to allow an adequate amount of data to be collected, whilst not demanding too much capacity from the organisation.

In each case, the unit of analysis was the relationship between the VCS organisation and the DfS approach. To understand this relationship over time, the data collection strategy was designed to capture data in each case from various project stakeholders (e.g. Chief Executive, Business Development Manager etc.), at various stages of the project timeline (before, during and post-collaboration). Action Research design activity was the predominant method in terms of data collection; data was collated through a combination of project meetings (Nimkulrat, 2007), design outcomes (Zimmerman, Stolterman, & Forlizzi, 2010), semi-structured interviews (Robson, 2011), and reflection-on-action (Schön, 1983) to generate multiple perspectives on the DfS approach.

Collating multiple participants' perspectives helped to build knowledge about the perceived value of design to different VCS stakeholders, whilst the different stages of the project provided insight as to how that changes over time. These multiple perspectives, both within and across the cases, also allowed data to be triangulated (Denzin, 1988) to ensure it was accurate and generalizable. To further ensure accuracy and remove any possible bias, an independent researcher collected and anonymised the data from post-collaboration interviews.

Data analysis

Data was analysed using a general inductive analysis approach (Thomas, 2006) to generate theory directly from the data, without being influenced by pre-defined goals. The data was taken through four stages of analysis using both inductive and abductive logic in order to construct theory: data-cleaning; first-stage coding; building multiple coding collections; and identifying themes and patterns.

In stage one, *data-cleaning*, all data (including 35 hours of audio recording and 109 pages of supplementary written data) was converted into a common format (Miles & Huberman, 1994, p. 51). All data was then collated for each project setting (including interview transcripts, project meeting summary sheets, reflection-on-action logs and other project correspondence), printed and filed in chronological order. This enabled a familiarisation with the content, themes and events described during a close reading of each data set.

The second stage, *first-stage coding*, continued the process of data-cleaning (Rahm and Do, 2000) by using the four aims for the study as evaluation objectives to guide hand coding of the data, further refining the pool of data relevant to the study's aims. Throughout the data, when a critical incident that related to one or more of the evaluation objectives was identified, it was first attributed to the relevant objective(s) using a number that correlated to each question (e.g. '4' for How was the DfS approach established in the VCS organisation?), and then encoded (Boyatzis, 1998). The codes were simple and precise and aimed to capture the qualitative richness of the phenomenon (Boyatzis, 1998, p. 1). Once this first-stage coding was complete, all relevant excerpts were copied onto Post-It notes to enable manual comparing and contrasting of the data.

Despite these primary stages of data-cleaning, there were still approximately 4,000 excerpts of text relevant to the research. Stage three of the process was therefore to create multiple coding collections (Guldbrandsen, 2006, p. 56) rooted in the original context. To do this, each excerpt was considered in a matrix, which placed time (project set-up, project activity, and post project reflection) on the horizontal axis and stakeholder (Designer, Chief Executive, Service Manager, Business Manager etc.) on the vertical axis. Where commonality was spotted within a quadrant of the matrix, similar quotes were grouped together and encoded, creating multiple coding collections.

The fourth and final stage was to compare multiple coding collections (Guldbrandsen, 2006, p. 56) within and across stakeholders, timelines and cases to isolate common categories. This was enabled by stitching together the photographs that captured the multiple coding collections related to a specific evaluation objective (four in total) and in a specific case study (three in total) to create an image that could be viewed in detail (see Figure 1).

Each image (there were 12 in total) showed the multiple coding collections related to an evaluation objective across the case study timeline e.g. multiple coding collections for evaluation objective how in Charity B, as in Figure 1:



Figure 1: Screen shot of compiled image showing multiple coding collections for the 'how' evaluation objective at Charity B (anonymised)

These common categories were then grouped and reduced to create core categories, which were then re-described as themes (Silverman, 2006, p. 307). These final themes were then analysed to derive patterns (Reichert, 2007, p. 221). With each of the patterns, a process of correlating the theory with existing literature and conducting peer reviews with fellow design researchers and key members of the VCS, helped to ensure their accuracy and credibility. This was particularly important because of the duality of the practitioner-researcher role in order to address any potential bias.

Findings

The data analysis firstly isolated the importance of the initial relationship that a designer creates with the project stakeholders in order to encourage engagement. The design process is inherently bankrupt without participation, and it is clear that to create *anything* of value, there needs to be a trust in both the design approach as a means of achieving that value, and the designer as the facilitator of the process (Acklin, 2013; Malmberg & Holmlid, 2013).

As there are no specific models on the development of trust in relation to design in social contexts, the authors have drawn on those proffered by organisational discourse to discuss the case study findings in more detail. Mayer *et al.*'s (1995) model of trust is the most widely accepted in the literature; it has three aspects of perceived trustworthiness:

- » Ability - "group of skills, competencies, and characteristics that enable a party to have influence within some specific domain"

- » Integrity - “involves the trustor's perception that the trustee adheres to a set of principles that the trustor finds acceptable.”
- » And benevolence - “the extent to which a trustee is believed to want to do good to the trustor... that the trustee has some specific attachment to the trustor” (Mayer et al., 1995, pp. 718–719)

The data clearly showed that demonstrating the *ability*, *integrity* and *benevolence* of the designer and the design approach are crucial to a collaboration. However, more significantly, the data has shown that in an initial engagement, the trust in the designer as a person is more important than the trust vested in the approach, as the designer acts as both the executor of the process, and the only source of the benevolent aspect of trust. In post-collaboration interviews, stakeholders from all charities remarked that they felt the designer's values affected the projects' outcomes: “I think a massive amount of [the success] is [due to] her” (stakeholder, Charity C) and “in my three and a half years of tenure here, [the designer has] become one of the most trusted members of staff... I think that's about her more than just the way she did things” (stakeholder, Charity B).

Furthermore, the patterns extrapolated from the data showed a direct correlation between the trust placed in the designer, and the increased use and reach of design in the organisation. Having stakeholders' trust and permission to create value on a *service level* allows the designer to then shift their activity to the *systems level* of the organisation. In Charity A, instances such as the CEO inviting the designer to present the work we had done to Network A's national conference acted as vocal recognition of the value of her abilities and the approach at a senior level. In turn, this had an impact on how she was perceived at a grass-roots level, as the Business Manager commented, “blimey, she's arrived!”. Similar evidence can be seen across the project timeline at Charity B, and in a post-collaboration interview, one project stakeholder remarked that “as the weeks went on... everyone wanted a piece of her”. Likewise, in Charity C, a stakeholder said that the designer “over performed instantly” and so her involvement in the organisation grew as a result.

The analysis of the design-erly roles, tools and methods that were of value showed that at this systems level, the designer used the approach to challenge organisational perspectives, which resulted in transformational change in two of the three charities. For example, in Charity A, the designer's challenge highlighted the need to create more progression-focused services. As well as developing new service delivery models, the charity also rewrote their mission and vision to reflect their person-centred provision; “we work with you as a person, not a diagnosis or a problem or set of problems or an illness” (CEO, Charity A). Similarly in Charity C, the design process highlighted the need to involve staff in the development of new offers. Post-collaboration, they have continued to actively involve their front-line staff in the improvement of the customer experience and staff are now contributing to challenges that are both within, and outside of, their remit.

Design has been used historically to establish new perspectives by: reconfiguring the problem space (Burns, Cottam, Vanstone, & Winhall, 2006; English, 2006); re-positioning customers at the centre of the process (Gloppen, 2011; Junginger, 2006); generating unconventional ideas (Brown, 2009; Dunne & Raby, 2007); and co-creating a new vision (Manzini, 2009; Thorpe, 2008). Each of these purposes aligns with one of three feature of Tan's (2012) ‘Designer as Provocateur’ role. As the most recent and most extensive research into the designer's roles, this has been used to describe how the designer and the design approach were used to create policy level change in the VCS organisations. In this case study:

- » *Proposing an alternative to the status quo* enabled; reflection on the status quo, which created the basis for the co-design activity; presentation of alternative service and system visions; reflection on individual and organisational practices, which resulted in new organisational visions.
- » *Using design as both a methodology and a medium* helped to; engage project stakeholders; communicate ideas in a way that created shared understanding; provide opportunity for project stakeholders to shape and contribute to the co-design activity; root change in user insight; and prompt reflection on the current service development process.
- » *Ideas that were eventually institutionalised* supported the embedding of; radical new service propositions as part of the organisation's offer; and a more customer-focused, collaborative service development approach.

In each of the charities, the creation of new organisational perspectives required both *challenge*, to deviate from the traditional, and *encouragement*, to ensure participation and the pursuit of the new. To describe the duality of this role required of both the designer and the approach in a VCS organisation, this paper proposes the appropriation of the term 'critical friend' from education literature.

Costa and Kallick (1993) define a 'critical friend' in an educational context as:

"A trusted person who asks provocative questions, provides data to be examined through another lens, and offers critique of a person's work as a friend. A critical friend takes the time to fully understand the context of the work presented and the outcomes that the person or group is working toward. The friend is an advocate for the success of the work."

(Costa & Kallick, 1993, p. 50)

Comparing the features listed in this much-cited definition (MacBeath, Schratz, Meuret, & Jakobsen, 2000; Swaffield, 2004), with the valued features of the DfS approach ascertained through the analysis of this case study data highlights clear parallels between the two. These similarities are presented in Table 1:

Features of Costa and Kallick's (1993) 'Critical Friend'	Valued features of the DfS approach in case study
Trusted person	Establishes trust in the designer's and the DfS approach's; ability; integrity; and benevolence
Asks provocative questions	Proposing an alternative vision to the status quo
Provides data to be examined through another lens	Using design as methodology and medium
Offers critique of a person's work	Using design as methodology and medium
Fully understands the context of the work and the outcomes that the person or group is working toward	Establishes trust to ensure participation; Using design as methodology and medium
An advocate for the success of the work	Using design as methodology and medium; Ideas which eventually become institutionalised

Table 1: A table comparing the features of Costa and Kallick's (1993) Critical Friend and DfS as Provocateur in this case study

The term 'critical friend' effectively describes the challenge that results in new perspectives ('critical'), as well as the close relationship required to introduce and encourage the use of new skills ('friend').

Importantly, although there is significant understanding of the value of design and the designer as 'critic', there is no discussion to date about the need for designers to have stakeholders' trust in order to enact this role. Whilst this study recommends the use of the term 'critical friend', it also proves that the 'friend' aspect is crucial to enacting the 'critical' part. This relationship, along with the steps required to enable design to be used as a 'critical friend' in a VCS organisation, has been depicted in the following model (Figure 2):

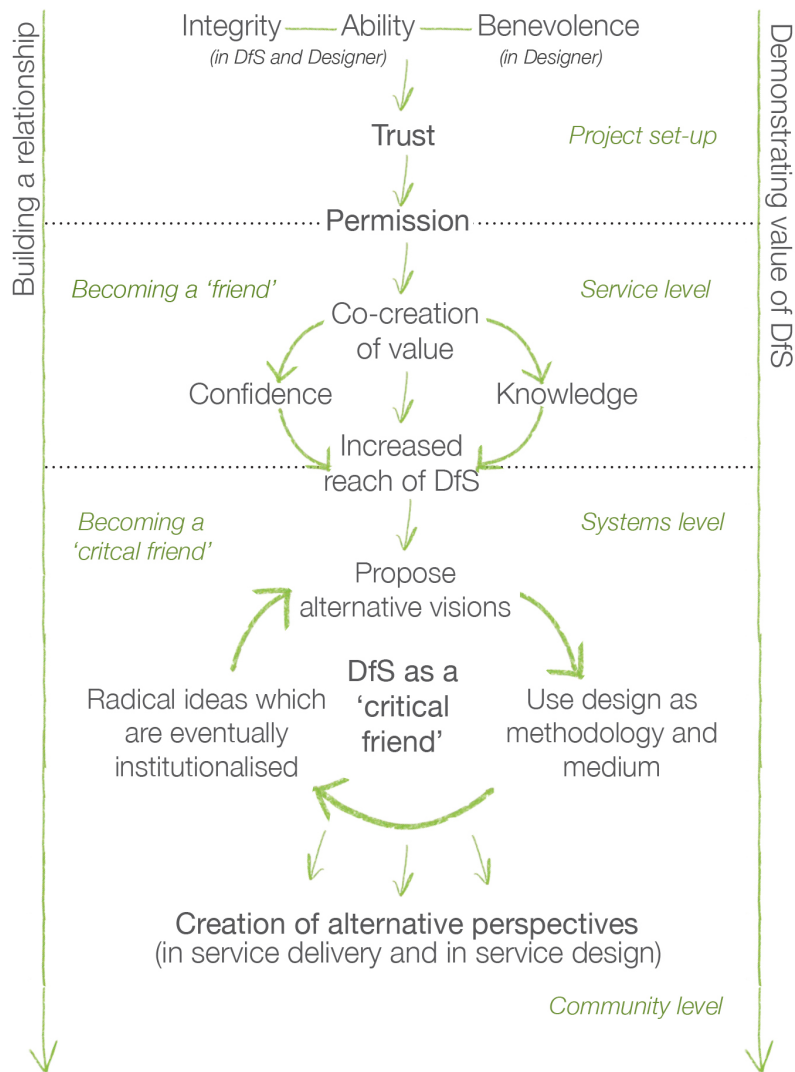


Figure 2: A model of the role of DfS as a 'critical friend' to VCS organisations in an initial engagement

The model is read from top to bottom. It is split into three sections: project set-up; service level; and systems level. The vertical axes of the model describe the two continual activities to which all steps in the model are linked: *building a relationship* and *demonstrating value of DfS*.

The *project set-up* level of the model describes how the designer had to elicit *trust* in the *integrity*, *ability* and *benevolence* of the designer and the DfS approach. This trust then led to *permission*, which allowed the designer to work in a participatory manner and undertake the *co-creation of value* on a *service level*. The co-creation of value then led to increased *confidence* and the *knowledge* of the stakeholders and designer, which resulted in an *increased reach of DfS* to the *systems level* of the organisation, allowing the designer to operate at the elevated level required for transformational change i.e. at the community or policy level.

At this systems level, the designer uses this trusted position as *friend* to challenge organisational behaviour, acting as a *critical friend*. The three features of DfS as a 'critical friend'; *propose alternative visions*; *use design as methodology and medium*; and *radical ideas which are eventually institutionalised*, are visually connected to show the importance of each aspect of the role. These features then lead to the *creation of alternative perspectives*, thus impacting on the *community or policy level* of the organisation. The *creation of alternative perspectives* is qualified by the phrase *in*

service delivery and in service design to indicate that the new ways of viewing issues affects what is offered, as well as how that is developed.

Conclusions

This research has found that the core value of the initial use of the DfS approach to VCS organisations is in its ability to act as a ‘critical friend’ and enable the transformation of perspectives. This transformation of perspectives can help VCS organisations during this period of austerity to rethink the challenges they face and the way they address them to come up with alternative models that are more desirable, effective and sustainable.

The term ‘critical friend’ is one that is often used intuitively in a design context; for example, the designers in the *Better by Design* programme, which introduced the approach to ten Scottish, described their role to VCS organisations as a ‘critical friend’ in Yee, White and Lennon’s (2015) research study. However, various searches of the literature show that this term has been used on an instinctual basis to date; there are no papers or publications currently available that qualify the use of this term in a design context through systematic research. Furthermore, no publications could be found that linked the use of this term in design to the recognised definition in education pedagogy; nor any that advocated the role of ‘critical friend’ as one that can drive transformation in an organisation or community.

The inductive analysis approach adopted in this study has meant that the patterns have arisen directly from the case study data; ‘critical friend’ has been used to capture the derived new knowledge, rather than the findings being used to justify the use of the term. The intuitive use of ‘critical friend’ in a design context therefore reinforces the value and usefulness of the concept to both Design and VCS audiences (particularly as *Better by Design* is also set in the VCS): using the term ‘critical friend’ should create more clarity for VCS organisations as to the role of design and the designer in a collaboration; and understanding that this role is of particular value to VCS organisations should also help to guide a designer’s engagement in such a setting.

At the foundation of this key role as ‘critical friend’ is the significance of the trust vested in the designer during initial engagements. Demonstrating the designer’s own trustworthiness was found to be of greater importance than evidencing the merits of design, and thus has multiple ramifications for practitioners, researchers and academics operating in the VCS. Further research into any common personality traits apparent in designers who tackle social challenges (e.g. social intelligence, aspects of empathy) would be valuable to understanding how to elicit the trust required in a VCS context. However, the model presented in Figure 2 offers an overview of the steps required for a designer to operate as a ‘critical friend’ in a VCS organisation, with the need to elicit stakeholders’ trust at its foundation. Although more research is required to populate this model with detail on how to enact each step, it is hoped that it will be able to guide a designer’s initial engagement in this context.

It should also be noted that whilst this research has focused on the use of the DfS approach, the findings presented in this paper have ramifications for Design audiences in general. The use of the term Design in the title of this paper reflects the fact that the design activity in each of the cases was diverse, and the resulting values extrapolated and identified are not specific to service-based practice. They are however specific to thinking of Design as an open-ended inquiry (Buchanan, 1992, p. 16; Rittel & Webber, 1973, p. 160; Schön, 1983), that advocates designing with people (or even people as designers), rather than designing for

people (Blyth & Kimbell, 2011; Brown, 2009; Sanders & Stappers, 2008, p. 7). It is hoped that evidence of the value of a design approach in a VCS setting will encourage more design-led collaborations, now and in the future, to inspire considerable change for the VCS as a whole.

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Thematic Research in the Frame Creation Process

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Abstract

Many of today's challenges that confront society are complex and dynamic and require new perspectives, new ways of looking at problems and issues, in order to be able to come to solutions that could not be found before. This process is called reframing and we suggest that one of the key stages in this process is thematic research, the search for themes that underlie these complex challenges. These themes generally turn out to be human themes, related to socio-emotional aspects of life. In this paper we report our experiences and lessons learned from a series of cases in which we experimented with various approaches to do this thematic research.

KEYWORDS: design thinking, frame creation, reframing, social design, thematic research

Introduction

Design as a discipline and design thinking as a practice are becoming more relevant in dealing with complex problems. We observe that today's challenges in many domains are open, complex, dynamic, and networked. More often than not, traditional problem solving approaches cannot properly deal with wicked problems (Rittel & Webber 1973) such as unemployment or Islamic radicalisation. Kees Dorst's work on Frame Innovation focuses on the practice of many professional designers to devote a great deal of attention to 'reframing' a problem before coming up with possible solutions and interventions (Dorst 2015).

Many complex problems cannot be solved within the framework of thinking that brought them about. This is the reason why it makes sense to first develop new perspectives on problems and issues in order to identify new directions for solutions. This is called reframing. The essence of Dorst's analysis of design practices is that reframing revolves

around a deeper understanding of human needs and human experience. The premise is that a deeper understanding of human needs, desires, and meaning related to a specific set of problems makes it easier to develop new perspectives without losing track of essentials. Dorst calls this important analytic step in dealing with complex issues ‘theme analysis’. If ‘trust’ and ‘fear’ are important human themes when dealing with security issues, then it makes sense to reflect on these themes outside the context of the original problem before trying to formulate new perspectives. Understanding these themes outside the original problem’s context is a useful starting point for formulating new frames.

One of the main research objectives of the group Information Technology in Society at The Hague University of Applied Sciences is to develop methods, techniques, and tools for professionals and students from various disciplines (ranging from interaction design to social work and safety and security management) that enable them to research human themes in the context of real life practice. With this research we contribute to the work of Dorst, by developing this particular aspect of the frame innovation methodology through the experiences and insights from cases (see also Dorst et al. 2016).

This paper reports our experiences and findings with doing thematic research and shares our lessons learned. We first position our research in the context of related work. We then present our methodology and discuss the Frame Creation process, with a focus on thematic research. We discuss one of the cases we worked on and then present our experiences and what we learned from executing and teaching the thematic research phase of frame creation. Finally, we discuss our conclusions and future work.

Related Work

We position this work in the upcoming field of social design. The term ‘social design,’ as described by Armstrong et al. (2014, p.15), “highlights the concepts and activities enacted within participatory approaches to researching, generating and realising new ways to make change happen towards collective and social ends, rather than predominantly commercial objectives. [...] Social design may be carried out by people who think of themselves as designers or who studied at design schools, or it might be an activity of designing that takes place involving people who are not professional designers.” Andrews regards social design as a field of service design and advocates the use of service design methods and techniques to address issues in the social domain (Andrews 2010, p.88). Manzini offers a slightly narrower definition and describes social design as “a design activity that deals with problems that are not dealt with by the market or by the state, and in which the people involved do not normally have a voice.” (Manzini 2015, p.65)

Social design addresses problems that challenge society by their complexity and often large-scale impact and requires an approach that embraces this complexity, rather than diminish it. Ignoring the complexity of problems often leads to solutions that encompass bureaucratic measures and regulations that are ineffective in the long term, addressing symptoms rather than causes. Acknowledging and working with the complexity of the problem allows us to identify underlying problems and find new perspectives and previously unimagined solutions (Rijken et al. 2014).

Verganti (2009, p.119) observes that design-driven innovation is successful when it offers new meaning. In his view, successful innovation does not rely on extensive user-centered research, which will only reveal meaning that people currently give to products and services.

Instead, companies that successfully innovate actively take part in the design discourse of an implicit network of what Verganti calls ‘interpreters,’ who closely study how people give meaning to things and then formulate new ideas that influence this meaning. These kinds of experiments with meaning and interpretations are very similar to the thematic research phase in frame creation.

According to Manzini, the role of designers then is to bring their design culture and creativity into the co-design process and form visions and proposals, steering clear of the extremes of big-ego design (the degraded form of genius design) and post-it design (where the designer only manages the creative process of others). This requires dialogic capabilities of designers: guiding other actors to design in a dialogic way, being “part of a broad design process that [designers] can trigger, support, but not control.” (Manzini 2015, p.66) Frame creation, and in particular the phase of thematic research, very much appeals to these dialogic capabilities of designers and participants in the frame creation process.

Methodology

The research group Information Technology in Society at The Hague University of Applied Sciences develops methods and techniques for reframing as an essential activity in conceptual design. Coming from different backgrounds, such as cognitive science, pedagogy, interaction design, product design, music, and theatre, we decided to embark on an explorative journey where we experimented with thematic research and frame creation for different problems. This has given us hands-on understanding of how frame creation can work. We also aim to assess the educational usefulness of different methods and techniques for thematic research in courses such as ‘service design’, ‘interaction design’, and ‘safety and security management’.

In close collaboration with Dorst’s research group in Sydney, we decided to focus on thematic research, since it plays a crucial role in the frame creation process. It is the moment where the thinking process has detached itself from the context of the original problem, and aims at a deeper understanding of underlying issues, as a foundation for actual reframing. Dorst observed, in his longitudinal study of design practices, that designers give much importance to finding the ‘real’ issues behind the given question (Dorst 2015).

Our efforts are also influenced by phenomenological practices (van Manen 1990) that address the analysis of lived experience, and by our own experience with more traditional scientific and philosophical literature research aimed at learning more about any given concept.

There are many different approaches to understanding a theme like ‘fear’, and one can easily lose oneself in a quest for deeper understanding. In the reality of professional practice, however, time is limited, and information sources (from scientific databases to websites with film fragments) are not always available at the moment of inquiry. If we were looking for any form of ‘truth’ or universal knowledge, we would be in trouble.

However, the role of thematic research in the design process is to provide inspiration for reframing, for new ways of thinking and understanding underlying issues. We decided to experiment with thematic analysis that takes many of these factors into account: in different projects, different members of our research group engaged in thematic inquiry from five distinct perspectives, using methods that they were curious about and felt comfortable with

and we frequently compared our findings. For example, 'trust' was investigated through interviews with police officers, but also through personal stories of people talking about their own lives. Group reflection on process and outcomes of different methods, however, was a regular activity. The next section outlines the different perspectives and methods we used in experimenting with thematic research.

Thematic Research

The essence of the Frame Creation process is that the complexity of the problem at hand is recognised, acknowledged, and developed into a potential context for solutions. According to Dorst (2015), the process starts with an investigation of the 'archaeology' of the problem - what is already known about the problem, its cause, and the attempts to solve it. Then, an inventory is made of the stakeholders and their values, interests, and behaviour related to the problem. So far, the process delivers an overview of the playing field, often in the form of a set of flipcharts that collects our observations of previous work and lists the stakeholders and their interests. Delving into the values and interests of stakeholders, looking for those shared among them and discussing what these actually mean, allows us to start identifying the underlying themes.

Identifying and investigating the themes

In complex problems, the emergent themes usually relate to human (inter)personal emotions, needs and values, such as ambition, fear, trust, insecurity, courage, dependency, etc. Thus, themes are conceptual notions that provide insight into the needs and motivations of the players in the field. Themes are often deeply personal and therefore hidden beneath the surface of everyday life. They are not normally made explicit in conversation, even when shared by all players.

Thematic research involves identifying the relevant themes, investigating the meaning of the themes, and finding inspiration from what we learn about them. This process takes us away from the original problem, not only because we enlarge our view on what constitutes the problem arena - we make the problem bigger by looking at related issues - but mainly because we study the themes outside the problem's context.

Identifying and studying the themes is an iterative process: as we study the themes, we will begin to understand them better and be able to recognise which are central to the case. The following gives an idea of how we generally do this.

- » Identify potential themes - in a group session, a discussion of the stakeholder analysis leads to a first set of possible themes, from which some are intuitively chosen for investigation.
- » Immerse in themes - through individual research, various perspectives (see below) are used to immerse oneself in the themes.
- » Discuss themes - results from research are presented and discussed in a group session; new insights emerge and the key themes are determined.
- » Reflect on themes - this involves a deeper individual reflection on themes, again from various perspectives, and checking insights with stakeholders.
- » Visualise themes - in a group session the connections between the key themes are discussed and visualised.

This process must not be fixed but adapted when needed during execution and allow for iteration, divergence and convergence to get to an understanding of the key themes.

Studying the themes can be done in various ways and we found that the choice of approach depends on three aspects: (a) the personal preference and experience of the researcher (what will work best for them?), (b) the nature of the theme itself (some themes are well described in scientific literature, others are better expressed in art), and (c) the amount of time available. Inspired by methods used in phenomenological inquiry we identified four perspectives from which to do thematic research:

» **Perspective of stakeholders**

In situ research - offers rich accounts of feelings and emotions relevant to the stakeholders and related to the problem area.

» **Perspective of the researcher**

Personal experiences - are rich and offer direct accounts of feelings and emotions, not directly related to the problem area. These experiences and accounts can come from the researchers themselves or from others, not in the role of stakeholder.

» **Literature from different sources**

Scientific literature - will give valid information, but can be difficult and time consuming with more generic themes, such as 'pride.'

Philosophy - will help with understanding the structure and dynamics and interpret meaning and relations of themes.

» **Representations or expressions of the theme**

Art and culture - poetry, popular literature, music, film, etc. offer evocative expressions and interpretations of the meaning of themes. Good art can actually make you feel something as well as help you understand it.

Through these approaches, themes can be dissected, analysed, understood, felt, annotated, and exemplified. It is useful to describe the structure and the dynamics of each theme. The structure of the theme defines its aspects and relationships and how the theme relates to other themes and concepts. This can be plotted out in, e.g., a networked word cloud (see Figure 1).

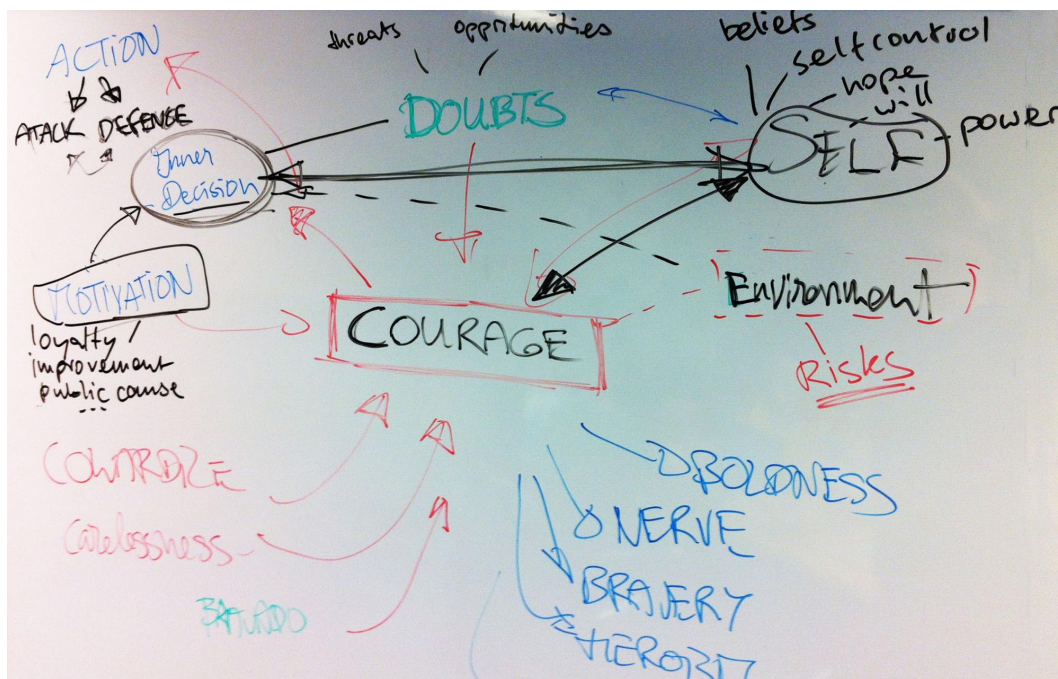


Figure 1 Representation of an analysis of the theme 'Courage'.

Complementing the structure of a theme, we also investigate its dynamics: what are driving factors or inhibitors in relation to the theme? What are causes and consequences, what are 'ways out'? What human behaviours and experiences are related to the theme; e.g., what leads to or follows from 'fear' and how is it dealt with in the moment? There are many ways these dynamics can be documented and creating a visual expression for it will help build a shared understanding in the team, for example in a causal diagram.

As the themes become more and more clear, we gradually get ready to return to the problem and reinterpret the ways it may be solved. From the themes, in particular those that are recognised and shared by the stakeholders, new frames of thinking about the problem can be created. Since these frames emerge from the deeper, universal themes that were not recognised in the original problem situation, they are more likely to lead to innovative and effective solutions.

Design case

In differing contexts, we have engaged in a number of projects aimed at finding innovative solutions to complex problems. Some projects were executed by an experienced research team, others by groups of students, guided by this team. In all projects we collaborated with stakeholders that were professionally involved or in the target group of the problem situation. Most of these projects were commissioned by municipal government bodies and concerned challenges such as radicalisation and neighbourhood resilience. These projects have yielded design frames for solutions in their respective problem areas, but we also used the projects as cases to experiment with doing the thematic research from the various aforementioned perspectives and with various techniques. We will discuss our approach in thematic research and the outcomes thereof for a project on the topic of accountability in neighbourhood governance.

Case: Public accountability for district policy in The Hague

Municipal governance bodies in urban neighbourhoods are challenged with multifaceted and complex problems that require an integral approach to be effective as well as reduce costs. Such an integral approach has been developed and is being executed in the Mariahoeve district of The Hague, where currently around 90 projects address issues of, for example, public safety and issues in social housing at the same time. When different policy domains are addressed and the budgets from various municipal departments are joined, accounting for an integral approach to such projects proves to be challenging, even when the results are promising. The programme manager of this district struggled with this accountability and was looking for new ways to handle her formal relationship in the municipal governance.

In this case we experimented with techniques to define the themes, in terms of structure and dynamics, as discussed in the previous section. We started by discussing the subject of 'accountability' both with stakeholders in the immediate context of the problem owner and with other professionals that deal with this subject. These discussions gave us insight in present experiences and allowed us to identify issues, needs and concerns, as experienced by these stakeholders and professionals. This resulted in a list of circa 25 topics that play a role with respect to accountability. From this list, we made a selection of 12 topics that were more central in the discussions: autonomy, attention, pride, courage, commitment, trust,

dreaming, playing, challenge, confidence, duty, and fear. We very briefly investigated these topics from various perspectives, outside the context of accountability, mostly by identifying interesting sources (e.g. scientific sources or cultural expressions) that define and discuss these topics either in a generic way or in an entirely different context. We then presented and discussed the results thereof within the team.

After this first exploration, the team jointly identified five themes that were regarded as the most interesting, that were most frequently used in conversations with stakeholders, and that, together, closely represented the problem area of accountability. These five themes were: pride, commitment, sharing, playing, and duty.

With these five themes, we did further research, again from various perspectives and using a variety of techniques. For example, the theme ‘playing’ was investigated through a conversation with a child, which gave interesting insights in the child’s emotions regarding playing; the same theme was also investigated in a card-sorting session with one of the key stakeholders, which gave insight into how space for play is important in her job. The theme ‘duty’ was investigated through storytelling sessions, using visual cues, with three local family doctors. The theme ‘pride’ was the subject in conversations and a guided tour with a local policeman. ‘Commitment’ was investigated through observations at the service desks of a housing corporation.

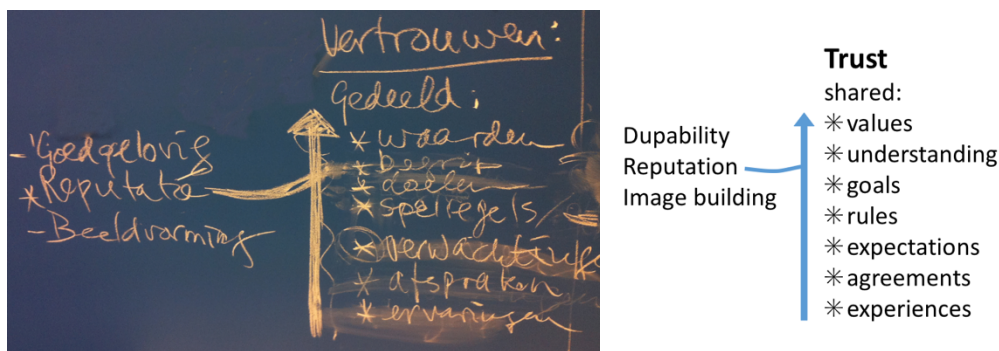


Figure 2 Levels of trust

Through discussing the relationships between these themes we found that ‘trust’ has a central position here. Trust is both given and received; it is required for experiencing and giving freedom; trust can lead to pride, courage, playfulness; and it is a condition for commitment and truly sharing. We found that trust can exist on multiple levels and depends on (or determines) what we share (see Figure 2). At the lowest level, trust is gained by sharing good experiences. Next up, there is trust based on solid agreements. At the top, trust comes from mutual understanding and sharing the same values. Lacking trust leads to the urge to control and audit – a reaction that will discourage innovation and experimentation in dealing with complex problems.

‘Trust’ became the pivotal point for the formulation of new frames. Creating frames out of the results of thematic research is the next phase in the frame innovation process and is outside the scope of this paper, but we will briefly mention the frames that resulted in this project. The first frame we arrived at was denoted as: “Organising accountability in a way that quickly leads to a higher level of trust.”

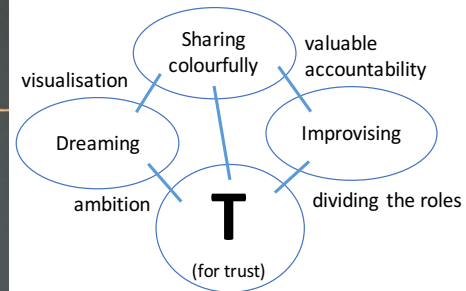
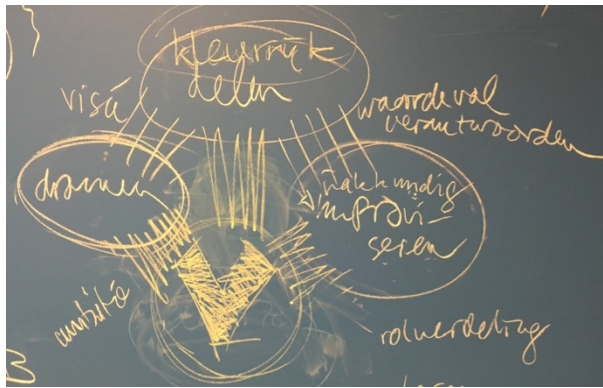


Figure 3 Moving towards frames from the central theme of trust.

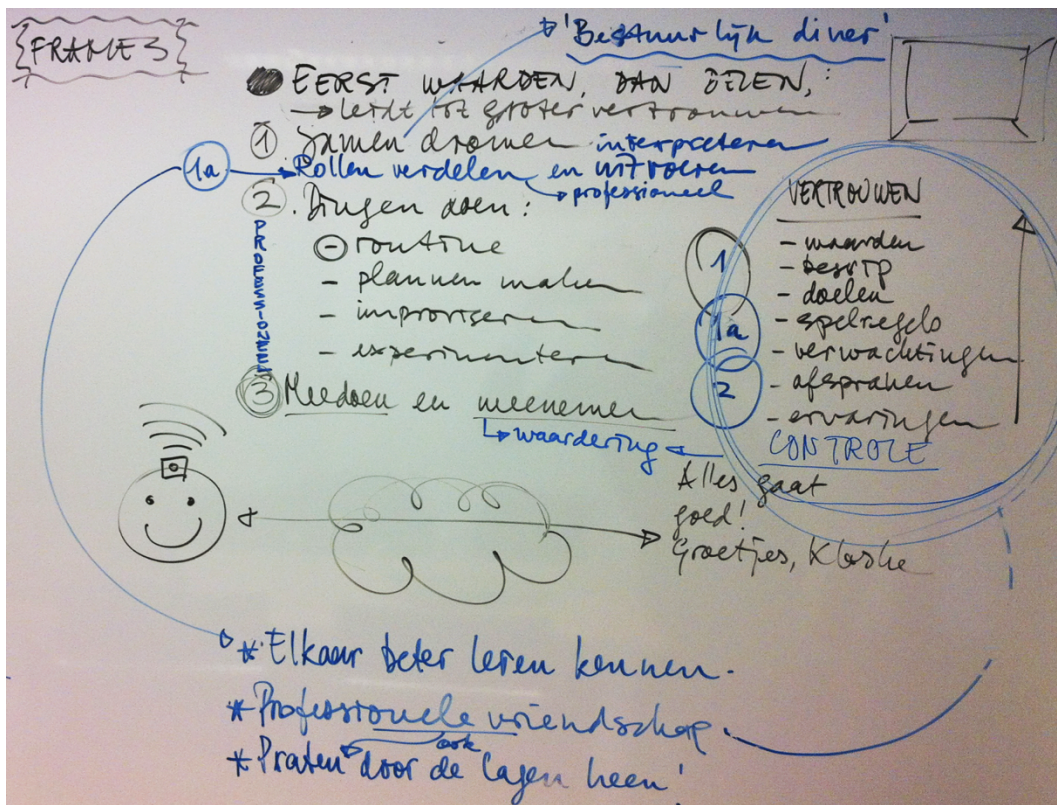


Figure 4 Draft (in Dutch) of the four frames resulting from the thematic research and reframing. The drawing indicates the range of possible forms of accountability: on the left a live webcam shares all action 24/7; on the right a simple note is saying: 'all is well, best regards.' The parties involved need to find the optimal middle way.

Subsequently, we developed the following four frames (see Figure 3 and Figure 4):

- » “First values, then sharing” - both parties involved in accountability need to first acknowledge and share each other’s values, before goals, approaches, and results can be shared meaningfully.
- » “Professional improvisation” - professional activities do not need to be routine or fully planned in advance. It is important to recognise the value of improvisation and experimentation, to consider activities as such, and to trust the professional to do it the best possible way.
- » “Illustrate vs. participate” - two ways of sharing results: by communicating step by step how results were obtained; or by inviting participation in the actual process.

- » “Professional friendship” - nurturing informal relationships between professionals, across hierarchies, cultivating trust on higher levels.

Experiences & Learnings

Through the cases that we worked on, we have experienced what factors influence the quality of thematic research. Here we summarise our main findings.

Who is involved

Preferably, the project team consists of a mix of ‘design thinkers’ and stakeholders. Without the stakeholders there may be insufficient connection to the case and it may become difficult to involve stakeholders later on. Doing the frame creation with only stakeholders is possible, but an experienced ‘design thinker’ may be needed to guide them in the process.

Stakeholders with a strong interest in existing solutions may have a tendency to block or frustrate the process. They may find it difficult to detach from the original context during thematic research. In this case, it can be beneficial to involve them only after the thematic research has been done, when new frames are being generated. Also, during frame creation new stakeholders may come into view that can play an essential role in possible solutions.

Initiation

The first time that students or professionals participate in a frame creation process, the method and techniques are unclear to them and guidance is needed. The overall approach and the focus on understanding the problem by making the problem space bigger and more abstract must be explained. It takes effort, with students but also with seasoned professionals, to relax their tendency of either focusing too quickly on possible solutions or keeping the focus too long on the problem. In both cases, they will have difficulty discussing the themes in a universal context, unrelated to the original problem and without moving towards solutions. Remarks often heard are: Why are we doing this? What is the use? Aren’t we making the problem too big now?’

To help participants take this step, it is necessary to make the different perspectives explicit and focus on either personal experiences or external sources for researching the themes. This must be a very conscious and deliberate effort. For example, asking them to tell about the last time they felt lonely will clearly take them outside the problem area.

Choosing research perspectives

Time available is always of influence when deciding how to approach the thematic research. When there is a small number of key themes and sufficient time taking multiple perspectives (art, literature, science, etc.) leads to a richer outcome and broader understanding of themes. In our experience studying a single theme with several team members, each from a different perspective, leads to deeper insights. With limited time available the team can divide the themes, but even so, doing the research from different perspectives will enrich the discussions and stimulate sharing of insights.

We also experienced, and recognise from phenomenology, that when the discussion of results from different perspectives converges to a single notion, this will probably be a valid notion. We experienced that this convergence happens rather quickly. For example, in our case on public accountability, 'pride' and 'responsibility' were driving factors in the work of the district programme manager (primary stakeholder). Our conversations with other stakeholders independently pointed out the same key elements. A local police officer stated to be proud of his activities and his personal successes in the neighbourhood; it is not the police as organisation that gave him this pride. Local family doctors talked in the same way about how they perceive the aspect of 'duty' in their job, which is strongly motivated by their personal values and related to their pride.

Dialogue and discussion

Probably more important than the choice of perspectives are the dialogue and discussion in the team about the results of the research (Figure 5). It is through these discussions that the team will gain insights and taking sufficient time for this in sessions is essential. This dialogue should give space to both reason and personal involvement when discussing the structure and dynamics of themes, as well as complementing, illustrating, and verifying that with lived experience.



Figure 5 Open-ended sessions, with no time pressure, for dialogue and discussion are essential in the process of thematic research.

During discussions and dialogues, the team should create output on flipcharts or whiteboards, making the discussion visible and building a shared understanding of the themes and structures. Sketching itself gives new insights as it gets people in a different frame of mind. Many creative forms, materials, and annotation techniques can be used for this. The discussion should remain lively and in motion, which can be supported through asking questions, asking for examples and experiences, and a persistent motivation to go deeper and refine how the themes are understood and interpreted.

Documentation is essential for several reasons. Firstly, it aids the thinking process as it happens when concepts are written down, related to each other and reorganised. Secondly, when there are multiple sessions, it is important that the group can easily recall what happened previously. Thirdly, documented sketches and photographs of whiteboards can be used to explain the thinking process that led to certain choices to others that were not involved. Documentation will trigger recounting the stories and insights gathered during the thematic research and can help explain the foundations of conclusions.

We often experience that students need guidance in the process of thinking about themes (Figure 6). However, surprising results may show once they start recounting personal stories and then collectively discover what these mean. They will then begin to understand that this approach is a new way of taking responsibility and can lead to effective innovation.



Figure 6 Students need guidance in the thinking process and the dialogues about themes.

Planning

The frame creation process can take on many forms and can be done within a short time frame or over a longer period of time. The process includes a sequence of sessions with dialogues and discussions, interspersed with individual research activities. These sessions can get rather intense, as, indeed, they should. This requires each session to have ample time, with no stress on expected outcomes. Also, distributing sessions over time is necessary to allow participants to reflect on findings and discussions and to do further research if required. Yet sessions should also not be too far apart (more than a week), because recollecting memories of previous sessions should not require much effort. Documenting during the sessions is essential but not an adequate replacement for vivid memories of these sessions.

In the reframing process, the phase of analysing themes gradually shifts towards the phase of formulating frames. When and how this takes place varies with each case and deciding when to move forward is a matter of intuition. Concluding the thematic research may prove difficult, as there are always loose ends and more relationships to be discussed and clarified. On the other hand, we should not be too eager to move toward solutions. With experience, the team will intuitively know when themes are understood sufficiently and start formulating frames.

Role and influence of personal experiences

Sharing personal experiences is useful when they are expressed in sufficient detail and with genuine emotions. We take inspiration from phenomenological practice to guide this process. It requires a confidential atmosphere that must be created in the team explicitly. Without confidentiality, stories will remain generic, impersonal and not contributory.

Investigating a given problem by looking into one's own experiences obviously has the pitfall of projection. Through discourse and critical reflection on recounted experiences, the team can be alert and be sure to identify the common ground. Having multiple team members provide personal experiences of the same theme helps finding shared aspects of the theme.

Participants with a strong background in the examined theme may undermine the team's open and inquisitive view. Foreknowledge can be motivating but may also lead to a bias in the interpretation of experiences. Being clear about one's background in discussing a theme, e.g., from the viewpoint of a particular theory or model, helps to deal with this.

The perspective of the researcher's personal experience is a fast way to find universal elements in unique experiences, since different researchers bring different perspectives you quickly sense the wholeness of the experience.

Conclusions & future work

Reflecting on our work process, where we experimented with many different methods and techniques to investigate human themes, we realised that variation is essential. Quickly using three methods creates richer understanding than spending the same amount of time in one chosen method. When looking for inspiration, breadth is more powerful than depth for two reasons: firstly, the quest for new perspectives benefits from different conceptual approaches, and secondly, these different approaches facilitate a reflective discussion about idiosyncratic differences and common patterns relating to a theme.

Further reflection on our own working process made us realise that there is more to methodological variation than initially apparent. After experimenting with different problems, different themes, and different methods and techniques for investigating themes, we found that the main methodological issue in all this is the quality of the choices to be made: what to do when there are dozens of methods and techniques available but not enough time to try them all? Firstly, we noticed strong personal preferences: some of us feel more comfortable using methods that are more objective and scientific, while others prefer personal experiences and artworks as sources of inspiration. Comparing outcomes from different participants using different methods, we soon realized, however, that this focus on methods and techniques tends to be a trial and error process with varying results, and that it is more effective to also think about desired outcomes: do we know what we want to learn about a theme? Are we interested in the emotional impact of a concept like 'anger' or in its dynamics: what triggers it, how is it processed, and what can it lead to? For example, philosophical investigation tends to result in deeper ontological understanding: what are key concepts, how are they related? Personal stories, on the other hand, tend to provide insight into emotional dynamics: what triggered a certain emotion, what did it feel like, and what happened afterwards? We aim our next research efforts at developing a better understanding of these connections between conceptual goals (what do we want to learn about a theme?) and methods and techniques (what to do in order to learn?). When investigating themes like 'accountability' and 'trust', it makes sense to look for emotions and social structures, and use appropriate methods and techniques. Investigating 'ambition', it may make more sense to find out more about the spiritual depth of what a person aspires to in life. We believe that this approach is also promising for education: if you want to learn about structure, ask 'what does X mean to you?', but if you want to know how a theme unfolds in daily life, ask 'what made you feel X, what did you do, and how did you deal with it?'

Acknowledgement

This research was financially supported by The Hague University of Applied Sciences and by the Technosprong research fund.

The authors are grateful to: the ‘problem owners’ of the cases, Gert de Ruiter, Martien van Rijn, Stichting Mooi, Klaske Hermans; our former colleagues in the research team, Eric de Vries, Cuny de Nie, and Sylvia Meijers; and to the many stakeholders participating in our sessions and field work. The municipality of The Hague has shown great interest in our work, stimulates collaboration, and generously provides spaces for our labs on various locations in the neighbourhoods.

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Service design for social innovation: the promotion of active aging in Rio de Janeiro

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Abstract

The article explores the territory of Service design for social innovation. More specifically, it discusses Service Design as a design approach that may facilitate social change, when it creates conditions (enabling systems) that promote social innovation. The theme of aging exemplifies a social issue that can be addressed through the design for services towards active aging. As methodology, this study is based on a literature review of key definitions in Service design for social innovation and active aging, as well as on a case study divided in two parts: a design exploration with undergraduate students under the proposed approach and a description of an actual service model that validates it. As results, the article provides evidences of a social approach to Service Design, based on the creation of socially innovative services towards active aging, designed to rely on older people as active protagonists of their own well-being provision.

KEYWORDS: Service Design, Design for social innovation, Active aging

Introduction

The movement towards an economy of services reflects in new research in areas such as marketing, management, engineering, computing and behavioral science (Meroni & Sangiorgi, 2011). Consequently, the research and practice in industrial design also searches for new directions, expanding its frontiers from the production of tangible products, to the design of services (Morelli, 2009; Secomandi & Snelders, 2011), capable to provide systemic solutions not only to the people, but also to the economy and environment in which they are (Joly & Cipolla, 2013). Through a human-centered design approach, the Service Design discipline focuses on creating models and functionalities for services, in order to ensure that their interfaces meet users' needs, as well as the expected supplier's goals. (Mager, 2009).

The Service Design approach understands services as co-produced experiences between provider and user, where both work together to co-create value - the client's satisfaction, the benefits for the supplier and the social experience for both (in the case they exist). (Mager, 2009). However, in a wider sense, services can be understood as based on relations among actors (Vargo & Lusch, 2011), where great part of them are established among relational beings (Cipolla, 2009). In this sense, services can improve their innovative capacities by thinking of new forms of social interactions, partnerships and value co-creation.

Within this context, the research and practice in the area of Design for social innovation have been contributing to the discipline of Service Design, because of the possibility of dematerialization of products (Manzini & Vezzoli, 2002), the appreciation of services that are born inside creative communities (Meroni, 2007), and the alternative of designing services that create not only economic benefits, but also social value (as within new articulations among local social actors, that increase conviviality, trust bonds and proactive behavior), promoting a social change within their contexts (Manzini, 2014; Joly, Straioto & Figueiredo, 2014).

The discipline of Service Design is evolving in several directions and exploring new territories. One of this directions is the design for services that enable new patterns of relation among actors, creating not only economic value, but also social benefits in terms of better solutions to face social challenges. This article explores a possible interface between the discipline of Service Design and the approach of Design for social innovation, where services are designed with the aim to enable new interactions and possible relations among actors, using their social capital as a resource, in order to create solutions to face social demands and/or societal challenges. For that, the theme of aging is used as an example of a social issue that may be addressed through the design for services towards active aging. To demonstrate this approach, a design exploration within an undergraduate course at COPPE-UFRJ (Brazil) is reported, describing a service project that promotes the reinsertion of the elderly in the labor market. Besides, the service called Maturijobs is explained as an actual service that put in practice the Service design for social innovation approach towards active aging. Finally, Service design for social innovation focused on promoting active aging is concluded as a visionary Service Design approach, since it redefines the role of elderly in society, creating solutions to face the challenge of an aging population.

Design for Social Innovation

The research about Design for social innovation shows that design is a strategic approach to introduce new techniques and knowledge within communities, in order to empower and replicate social innovation initiatives (Meroni, 2007; Manzini, 2014). The Design for social innovation approach, however, can also stimulate new social innovation processes, that result in new connections among social actors that lead to a local social change (Cantu, Corubolo & Simeone, 2012).

Within this perspective, it is suggested that designing services with the focus of creating new operating models based on actors and their interrelations as social resources can enable social innovations to happen. This design approach is developed through participatory and/or collaborative processes, and focus on enabling solutions to address social demands and/or to create new social structures. (BEPA, 2011; Cajaiba-Santana, 2014; Joly, 2015).

According to BEPA (2011), there are three complementary approaches to the understanding of “social” within an innovation, according to the output that it is expected to deliver. The outputs may be related to address: (1) social demands, answering needs of more vulnerable groups in society, whose demands are unmet by the market or government; (2) societal challenges, where social becomes an opportunity, instead of a problem, and includes new forms of relations among social actors to produce a commonly recognized well-being (e.g. new production and consumption systems); (3) systemic changes, where the outcome is reshaping society itself and relates to changes in fundamental attitudes and values, strategies and policies, organizational structures and processes, methods and ways of working, institutions and linkages between them and different types of actors.

In fact, BEPA (2011) describes these approaches as interdependent. Thus, the first is the basis for the second, which creates conditions for the third. As an example, the organization cites an innovation to solve the social demand of elderly care, which contributes to deal with the challenge of an aging society. These solutions, when organized systemically (i.e. when they are not only local, but encompass a territory, create new services within a health system, etc.), can lead to social change. In this sense, they can create new structures (infrastructures, services, etc.) that enable new ways of living and working within society. Within the same example about the elderly, a social change could be an active engagement of seniors, towards a society where elders participate and are empowered to keep contributing to daily social activities (e.g. work, leisure, health, etc.).

Within this context, Design for social innovation is an approach that uses different Design expertise (product and graphic design, strategic design, etc.) to make “social innovation more probable, effective, long-lasting and apt to spread.” (Manzini, 2014, p. 65). Design for social innovation, therefore, enables designers to play a central role in solving social challenges, through the involvement and development of collaborative processes for the promotion of new production systems.

Cajaiba-Santana (2014, p. 44) states that “social innovation has been frequently presented as a normative instrument used to resolve social problems through the creation of new services and new products” and underlines that “the path of social innovation is not a social problem to be solved, but the social change it brings about.” Here, social innovations are understood as alternative social solutions, based on actors and their interrelations as social resources, that find new ways to meet social demands and/or generate social change in the systemic level (promoting incremental and radical change in production and consumption systems, for example).

It is noteworthy that Design for social innovation is an approach that may be developed at least through two ways: designers identify existing cases of social innovation and give them support; designers create new ways of thinking and doing and start a new movement of social innovation. In the last case, when designers intervene in a community of actors to encourage social innovation, they must be able to articulate different institutions (civil, public, private) to promote lasting changes. So, briefly, Design for social innovation is a design approach that aims not only to create solutions for local problems, but also to envision new life styles and new possibilities for local production and consumption systems (Meroni, Fassi & Simeone, 2013; Joly et al., 2014).

There is, therefore, a possible interface between the discipline of Service Design and the approach of Design for social innovation, where services could enable social innovation processes or be designed from social innovation initiatives.

Service Design for Social Innovation

Under a Service design for social innovation perspective, services can be designed from existing social innovation initiatives (Cipolla & Moura, 2012; Joly & Cipolla, 2013; Joly, Cipolla & Manzini, 2014), where designers identify the operational model of social innovation initiatives, exposing new ways to produce and deliver services already being prototyped in real life. The second possibility is that services can be designed with the view of generating social innovation processes, where new connections among actors are enabled, in order to generate social and/or economic benefits to meet social needs or create alternative production and consumption systems. (Joly, 2015).

As a matter of fact, groups of design researchers and practitioners have already put in practice Service Design projects in order to enable services to promote social innovation processes.

The Design Council was one of the pioneers in applying design thinking to contribute to solving complex social and economic problems. Burns et al. (2006) call this approach as Transformative Design, which applies design thinking to address social and economic issues, putting the individual at the heart of new solutions, and building the capacity for innovation in organizations and institutions. Burns et al. (2006) describe a project of this organization that seeks to help people with diabetes and professionals who work with this profile, focusing on preventive health care and chronic disease management. The Design Council designed services that motivate people to a self-management of their daily lives, encouraging them to have an active role to prevent and deal with health issues. This approach allowed people to define their own agendas and how to make their progress assessment, creating a greater commitment in managing the disease. Strategies as calendar-cards or diabetes blog were used to co-create this service, creating new interactions between patients and professionals, in order to allow patients and their families to share experiences and health management strategies.

Still other example is Feeding Milan, a strategic design project promoted by Politecnico di Milano, University of Gastronomic Sciences and Slow Food Italy, that aimed to create a product-service system to attend a demand for high-quality, fresh food in the Milanese urban area. The idea was to connect local food production in periurban areas with its consumers in town, through a network of services. “The strategic vision of the project focuses on the mutual advantage represented by the proximity of city and park, fostering the relationship between the city and the productive countryside through the de-mediation of the agri-food chain.” (Manzini, 2014, p. 63). To achieve this scenario, the project stimulated collaboration among groups of citizens, farmers, designers and food experts. The project resulted in the creation of a set of services: “including the Earth Market of Milan, a farmers’ market that brings farmers from the park to the city to sell their products; Veggies for the City, a project about the production and distribution of local vegetables; and the Local Bread Chain, which aims to restore a local bread chain, from crops to the final consumer.” (Manzini, 2014, p. 64).

These service models are evidences of how the elements for service provision can be designed to enable people to get the most of already existing resources of their contexts, in order to reconnect them to create new value co-creation chains. Service projects, therefore, can be the means for social innovation to happen, since they facilitate new connections among social actors, who can be engaged in the service process as active agents, what may result in social and relational benefits.

This opens up a wide focus of research in the realm of Service Design, here called as Service design for social innovation, as a potential approach to create services that provide social benefits as their main output, and permit the involved actors to have an active role in the service provision. In this sense, social actors are enabled to create new interactions among them and their context, being able to “live as they like.” (Manzini, 2007, p. 11). Service design for social innovation, therefore, could be a Service Design perspective to address societal challenges towards social change.

Active aging principles and its relevance for a new generation of services in the Brazilian context

According to Kalache (2013, p.3-4), the world population is aging rapidly. Between 1970 and 2025, it is expected an increase of "223% in the number of the elderly - or around 694 million people." According to World Health Organization (2005), the aging population can be seen as a success of socio-economic development and public health policies. Nevertheless, it also can be seen as a challenge of the contemporary society, regarding its adaptation to this new age group conformation.

Because of that, aging has become a design issue: it is urgent to rethink the role of the elderly in society through design. It is required not only to stimulate preventive behavioral tendencies, but also to identify and explore an immense human capital not used in this age group.

It is worth noting that even though the elderly of the past is not the same elderly of today, they still carry the weight of the negative stereotype of what it is to be old: useless, ill, incompetent, unproductive and dependent. These stereotypes can lead to a rejection of the elders and social marginalization. They can also contribute to a misunderstanding of the concept of ‘third age’, what may cause confusion in people who are being introduced in this universe.

Within this context, the World Health Organization (2005) has been disseminating a new idea related to the elderly, the **active aging**. Active aging means the “process of optimizing opportunities for health, participation and security, in order to improve the quality of life as people get older.” (World Health Organization, 2005, p. 13-18). This term expresses the aging process as a positive experience, in the sense of a longer life with continuous opportunities to participate and have security, in addition to health care.

There are four fundamental principles related to this concept (OMS, 2002 apud Kalache, 2013, p. 34-37):

- **Health:** consists in creating health support environments and encouraging healthier individual choices. The goal is to promote well-being during the whole life cycle of a person and also to maintain the elders above the disability threshold (to keep them living independently);
- **Lifelong Learning:** works as a support to the participation principle. It aims to maintain the elders actively participative and connected to the society, maintaining abilities and knowledge. Not only it refers to academic learning or formal training, but also it includes any form of learning - ranging from daily and simple activities to more complex ones;

- **Participation:** it is based on pursuing opportunities, efforts and stimulus to remain active in society. The goal is to provide a gratifying transition to a new age stage and social life;
- **Security:** it is about trust and protection in so far as people get older. It seeks to maintain dignity and care providing, steady housing, good-quality health, protection against damage and financial security (specially for vulnerable people due to sickness or disability).

In Brazil, the focus on the promotion of active aging values is important, since the country is living a moment of increasingly emerging demands for services for older people. The focus on this issue under an active aging perspective will stimulate the development of new services, that can incorporate new approaches to deal with elderly within society.

Methodology

This study follows a DESIS Network (Design for Social Innovation and Sustainability) approach on which design schools are drivers of change in their local contexts, generating paradigmatic projects able to foster a social conversation aimed at promoting social changes.

In 2011, students were invited to develop services able to promote the principles of the active aging in Rio de Janeiro specifically focused on the following themes: health, leisure, work, communication, housing, transportation and food.

The process followed three phases:

- a theoretical phase, on which students were presented to the key concepts and tools of service design, social innovation and active aging;
- a design phase, which encompass a design exploration and;
- a final presentation and discussion with external actors.

The design exploration methodology was inspired on the HCD (Human-Centered Design) approach. The HCD Toolkit, specifically, helped the students to know how to develop a human-centered design process, since the toolkit supported them to build observation and empathy skills, as well as to use prototyping to implement their ideas. The process is composed by the following phases: a) hear, determining who to talk to, how to gather stories, and how to document observations; b) create, generating opportunities and solutions that are applicable to the whole community; c) deliver, choosing top solutions, making them better, and moving them towards implementation.

Within this context, students were invited to: define the design challenge through interviews, participant observations and establishing a direct contact with the elderly; develop and refine the service idea (expressed on service journeys, personas, blueprint, business model canvas).

Three years later (2015), the authors identify an actual service that follows one of the service models designed by the students, serving as a validation of the visionary approach of Service design for social innovation towards active aging developed since 2011. The following paragraphs report the design exploration with the students, the service model prototype designed by them and the actual service identified as a validation for it.

Design exploration

The design exploration was carried out with the participation of undergraduate students in Industrial Engineering from the Polytechnic School at the Universidade Federal do Rio de Janeiro (COPPE), during the course of Product Design. The idea was to explore the design of services that promote socially innovative scenarios for elderly in the city of Rio de Janeiro.

Context: elderly in Rio de Janeiro

In Brazil, the rate of growth of the elderly population has been systematic and consistent: according to data from the World Health Organization (2005), by 2025 the country will be the sixth in the world in number of older people.

Rio de Janeiro is the state with the highest percentage of elderly population in Brazil, where one in seven people has more than 60 years old. (Pnad, 2009). Therefore, for designers and students in the design field the issue of the growing elderly population is getting importance: a) to identify a market niche and how to meet it; and b) as cultural and social transformation through education, in order to revise a negative stereotype of the elders (associated to outdated, unproductivity or dependence).

Service prototype: Golden Age service

The group that worked with the “work and elderly” theme was here chosen to illustrate how service design is an approach that anticipates social change.

During the Product Design course in 2011, this group based its research on classroom orientations, qualitative research and the students own experience as designers to deal with an elderly working issue. “Golden Age” was the name chosen to the product-service system developed by them.

In the research phase of Golden Age, students interviewed older people ranging from 60 to 85 years old or more. From this, three major insights appeared: (1) old people had problems to deal with new technologies, (2) they were well trained individuals, and (3) their life experience was an advantage when hiring them for a job. Hence, after a better understanding of its analyzed actors and circumstances, the group decided that its challenge would be to enable the return of older people to labor market after unemployment or retirement.

In short, Golden Age aimed to serve as an online platform to bridge two service actors: older people and companies. The service model was based on a head-hunter service specialized in (re)discovering elderly talents and a coaching service to help the ones with difficulties to apply to new jobs.

The innovation was focused on the creation of a connection in the job gap: seniors with professional experience willing to keep working and organizations that would feel interested in hiring them. Besides the economical gains, it was expected an increase of confidence and respect for the seniors.

Service validation: Maturijobs service

In 2015, a start-up named Maturijobs appeared in the Brazilian market. Maturijobs carries the same concept as Golden Age, which is the connection between old people and jobs opportunities. Its service model is also based on an online platform (Figure 1), which seeks to find (new) jobs for individuals with 50 years old or more.



Figure 1: Maturijobs website interface. Source: Maturijobs, 2015.

The business model of the service is based on an outsourcing service offer, which connects elderly and companies, crossing their skills to demands that businesses have. Many times people get retired from specialized professions (e.g. teachers, translators, counters, etc.), from which services can still be useful for other people demands. This service intermediates these retired or unemployed people with specialized skills and companies through a web platform and service contracts. This is also good for seniors, who feel acknowledged by their active participation in their local economy and local community life.

The service is based on a sharing economy perspective, where older people are enabled to offer their services, not only for companies, but also for other interest people. Therefore, the service empowers a new market, where elders are stimulated to be economically active, even after being retired.

Analysis and discussion

The balance between a changing age profile and its consequently emergent demands create design opportunities. As highlighted by the International Longevity Centre Brazil (2015), the age distribution of a population has a major impact on community planning, urban design, resources management, economic productivity and service provision. In the context studied here, this means that society, before composed predominantly by young people, should (re)design products, services and policies that meet the new demographic regime marked by an aging population.

The ability to envision, design and implement the necessary adaptations for efficient and effective management of an aging population is critical for countries like Brazil. In the particular case of this country, demographic transition and the consequent demand for such

adaptation gains visibility at a time of economic deceleration. Within this context, governments and companies have adopted budget cuts, which often compromise the ability to innovate and invest in new products and services. This cut of investments in R&D increases the transformative role of the university.

In the studied academic case, the university acts as a driving force for social innovation, designing products, services and policies that contribute to promote active aging. In this sense, the service designed by the students contributes to create a vision where older workers can have access to opportunities for active aging, especially with regard to the pillars of continuing education and social participation. The Golden Age service expands access of older workers to significant professional occupations. This helps them to maintain their professional social networks and develop new skills and knowledge, besides of having access to financial resources (income), fundamental for the maintenance of physical, mental and social well-being.

The Maturijobs, on the other side, reinforces the possibility of engaging society, companies and the government to a new societal pattern where seniors can still actively collaborate. In this sense, Maturijobs wants to create a culture of valorization of experienced people, shifting the focus from the stereotypes about them to their actual capabilities.

The two presented cases covered the four fundamentals principles of active aging. They value senior participation within society in a perspective where they are not seen as a problem, but as a valuable social and economical resource. In an alternative line to the mainstream perception, both cases appreciate elderly as a work force niche and reinforce the need of a proactive participation of these seniors in society.

Briefly, Golden Age and Maturijobs demonstrated that demands for innovative services models - which can meet a particular social issue - exist. Under a Service Design perspective, both services promote social innovation, because they facilitate new connections among actors, based on their qualities as social resources, creating solutions to the social challenge of an aging society.

Conclusion

The article presented and explored how Service Design can embrace the perspective of active aging to design socially innovative services. Service design for social innovation, therefore, is explained as a way of planning and structuring new forms of relations (how to connect old people and companies) and bringing together different service actors (seniors, companies, society). The active-aging services can increase opportunities for people to get older actively. This is beneficial for the whole society, because it reduces costs and problems which come from a passive aging. It helps to avoid loneliness problems and cognitive deficits, for example, within this age group. As demonstrated, the two cases explore the four pillars for active aging: health, lifelong learning, participation and security.

Service design for social innovation towards active aging is visionary, in order to design services that meet the challenges related to the aging population. In the case of the project Golden Age, the approach enabled students in 2011 to design a service to reinsert elderly in the labor market, valuing their individual qualities. The Maturijobs service is a validation, in 2015, that there is a demand for this type of service and that elderly can not be seen as

economically and socially inactive individuals, since many reach an older age still being able to participate and collaborate within society.

Finally, Service design for social innovation is concluded as a relevant approach to achieve social change through the design for services.

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Mapping Care: A Case Study of Dementia Service Provision in the North East of England

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Abstract

This paper reports on the first author's ongoing Arts and Humanities Research Council (AHRC) funded PhD research, exploring the potential for design disruption interventions within the context of informal health and social care.

The paper describes a specific project to map the experiences of people caring for dementia patients, exploring their interactions with governmental and charitable support organisations, their perception of the services available to them, and other informal methods they employed to cope with the caring role.

The findings offer a new way of visualising the complex interrelationships between these organisations, and highlight a number of important issues faced by informal carers. These include a pressing need for clearer, more accessible support pathways, clarification of the role and duties of some support organisations, and the value of intangible forms of assistance such as emotional support. These findings will form the basis for future disruptive design interventions in this area.

KEYWORDS: design disruption, mapping, health, social care, informal, intervention, carer, dementia, visualization, timeline, PhD, research, experience

Introduction

In the UK, almost 6 million people provide unpaid, informal care for a family member or friend who couldn't manage to live independently or whose health or wellbeing would deteriorate without their help. This role can include caring for a person (or for multiple people) who are ill, frail, disabled, or have mental health or substance misuse problems.

The vast majority of health and social care in the UK is provided by these unpaid informal carers. This saves the UK taxpayer over £119 billion per year (Carers UK and the University of Leeds, 2011). In England, around 3 million households contain an unpaid informal carer, which represents huge social care and NHS cost savings. The official figures from the 2011 Censuses show that there are 25,810 adult carers living in Newcastle upon Tyne, which is

almost 10% of the city's population. Although the role and experience of informal carers is unique to their situation, and caring can be a rich source of satisfaction, it is also known that they have a significantly increased risk of mental and physical health problems. Thus, it is very important that we identify informal carers so that we can provide much needed help and support such as the unique and innovative disruptive design workshops that will re-imagine social and health care through participative design events. This has the potential to achieve more than simply ploughing more money into social and health care would achieve on its own.

Anyone can become a carer; carers come from all walks of life, all cultures and can be of any age. Many feel they are doing what anyone else would in the same situation; looking after their mother, son, or best friend and 'just getting on with it'. Carers experience many difficulties in their caring situations. For example, a carer could be someone looking after a new baby with a disability or caring for an elderly family member with complex needs. In the UK, informal carers are the largest source of care and support. Of 4,935 carers surveyed nationwide, 56% stated that they provide unpaid care for 90 hours or more each week (Carers UK, 2015). However, the demands of the caring role can lead to a number of other related problems including:

- » Carers facing a life of poverty, isolation, frustration, ill health and depression.
- » Carers giving up a regular financial income, future employment prospects and pension rights.
- » Carers juggling several jobs with their caring responsibilities.
- » Carers struggling alone not knowing that help is available to them.
- » Carers lack access to information and financial support that are vital in managing the impact of caring on their own lives.
- » Carers with multiple caring roles - often referred to as "sandwich carers" – who are frequently older women who care for relatives (e.g. a mother with dementia and a daughter who misuses drugs).

This paper will describe an ongoing Arts and Humanities Research Council (AHRC) funded collaborative project with Newcastle Carers, an independent charity working in the areas of health and social care. They provide carers with expert, confidential, non-judgemental, and impartial assistance. This assistance takes the form of information and advice, guidance, emotional and practical support groups, activities, training, one-to-one counselling, and complementary therapy. They also work with local communities and professional services to raise awareness of the problems faced by carers. Newcastle Carers also conduct individual assessments of carers and the people they care for, and make referrals to appropriate organisations for specialist support services.

Aims and Objectives

The aim of the research is to develop disruptive design interventions (*e.g.* products, systems, services) for breaking the cycle of well-formed opinions, strategies, mindsets, and ways-of-doing, that tend to remain unchallenged in the caring of vulnerable individuals in the UK. Example interventions include "sticker" campaigns, "fortune cookie" services for restaurants, "lamppost data" prompts, and others (see <http://designdisruptiongroup.wordpress.com/> for more examples). Disruptive Design is an approach that the academic members in the HEI lead partner (Rodgers and Tennant, Northumbria University) have developed over several years. A disruptive design approach

encourages the development of richer, more varied solutions to everyday issues by emphasising fun (Bisson and Luckner, 1996), “safe failure”, and doing things in ways that participants wouldn’t normally do. It utilises “the cloak of creativity and apparent silliness” (Michlewski, 2015) to seek new insights that can lead to innovative ways of doing. In essence, the disruptive design techniques and approaches provide opportunities for users to experiment in a relaxed, stress-free environment with expert facilitators.

This is in sharp contrast to existing strategies of public service design, characterised by “disjointed incrementalism...where services are altered and adapted by changing political drivers, professional fashions, shifting institutional norms and boundaries, and the biased lessons of past experience” (Design Commission, 2014).

Most of the research in public health seeks to evaluate intervention effectiveness and value for money. By contrast, design disruption embraces experimentation, and consequent failures, as an integral part of dynamic systemic change, embracing the mantra of *Worstward ho* – “Ever tried. Ever failed. No matter. Try again. Fail again. Fail better.” (Beckett, 1983) – as a path towards unexpected, radical change. Design disruption focuses on “trial and error, hunches and experiments that only in retrospect look rational and planned” (Mulgan *et al*, 2007).

We propose to develop and test a series of disruptive design interventions and assess how they might improve carers’ lives in the North East of England. This research builds upon the established relationship between Newcastle Carers and Northumbria University, in which disruptive design workshops have helped carer support workers create a “charter of care” to help them explore and articulate the values underpinning the service (Rodgers, Tennant, and Dodd, 2014). Given the extremely challenging nature of the informal caring situation in the UK, the main aims of the collaborative research are to:

- » Help change society’s perceptions of caring in the UK through a series of disruptive design interventions (*i.e.* products, systems, services).
- » Create a series of designed interventions that will help carers access support before they hit “crisis point” when their health is sometimes irreparably damaged.
- » Help identify the major day-to-day consequences of caring for people through the use of disruptive design techniques and approaches.
- » Consider how prevention and early intervention (*e.g.* designed products, systems, services) could enable carers to have greater choice and control.
- » “Formally invite” carers to participate/collaborate in the creation of the designed interventions.

Research Questions

- » How can disruptive design interventions help ensure that all carers will receive greater choice and control in their lives?
- » What role can disruptive design interventions (*i.e.* designed products, systems, services) play in improving the physical, mental health and wellbeing of carers?
- » Can disruptive design interventions support informal carers to have a life of their own outside of their caring role, including a social life, in work and education and training?
- » Can disruptive design interventions contribute to ensure that carers do not suffer financially as a result of their caring role?
- » Can disruptive design interventions help ensure that carers are treated as expert partners in care?

Mapping Care: A Case Study

The methodology proposed here adopted an iterative mixed-methods approach, useful in the capture of both quantitative and qualitative information, which has advantages over other research approaches particularly relating to the development of reliable explanations (Cresswell, 2003). Utilising research approaches and tools such as participatory design, ethnography, interviews, and cultural probes (Gaver et al., 2004), the research focused exclusively on people caring for family members diagnosed with dementia in its various forms, including Alzheimer's Disease, Vascular Dementia, and Lewy Bodies.

Individual carers were interviewed by the first author (Designer) in early 2015. The carers were encouraged to speak openly and honestly about their experiences as carers, from when they first noticed a (typically very minor) deterioration in the patient's cognition, until the present day. Particular care was taken to establish which statutory and charitable organisations the carer interacted with during this period. The carer was also asked to explain whether they felt these interactions were positive, negative, or neutral.

During these interviews, the Designer created colour-coded “maps” to show the interactions between the carer, the patient, and the various organisations involved. These maps helped to visualise not just the carers' individual experiences, but also the relationships between the organisations, providing “rich descriptions of processes in identifiable local contexts” (Miles and Huberman, 1994).

Historical Context

These maps of “emotional experience” take inspiration from artists including Adolf Wölfl, who created richly detailed artworks of his own imaginary life story through the prism of his mental illness, “imposing his own sense of order on it” (Harmon, 2004). Similarly, Guy Debord stated that the Situationists' forays into psychogeography were an attempt to examine the “specific effects of the geographical environment...on the emotions and behaviour of individuals” (O'Rourke, 2013) – subjective, fragmented, and a direct challenge to “the rational city” (Sadler, 1999) imposed upon the citizens of Paris (Figure 1 - right). Likewise, Lars Arrhenius' urban maps (Figure 1 – left) are created to reveal “those spaces that conventional cartography would ignore” (Arrhenius, Ryman, and Wilson, 2003).

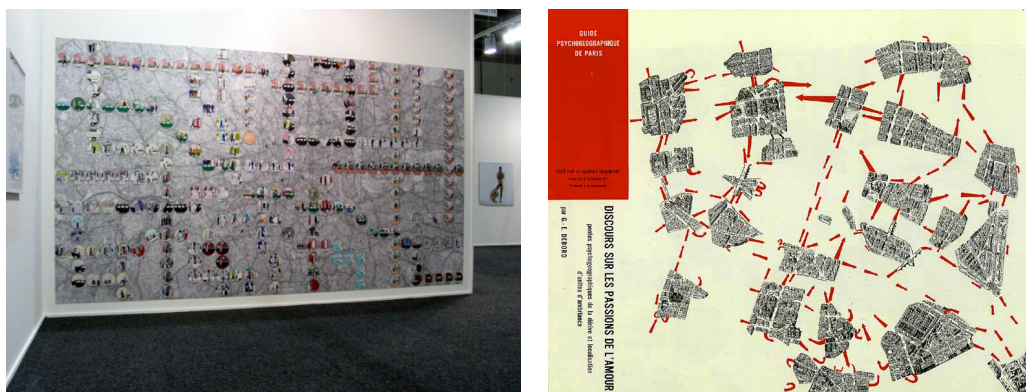


Figure 1. Lars Arrhenius, A-Z (2002)ⁱ (left) and Guy Debord, Psychogeographic Guide to Paris (1955?)ⁱⁱ (right)

Lars Arrhenius' *A-Z* is a map charting overlapping events in the lives of 18 protagonists operating within the same landscape. "Arrhenius' stories of everyday life interest both meaningfully and apparently randomly to relay everyday emotions...all of which play out on a directly experimental, if wordless, level, and which the reader fills in as another rewriting" (Arrhenius, Ryman, and Wilson, 2003). Arrhenius' map proposes questions and makes observations, but offers no specific answers.

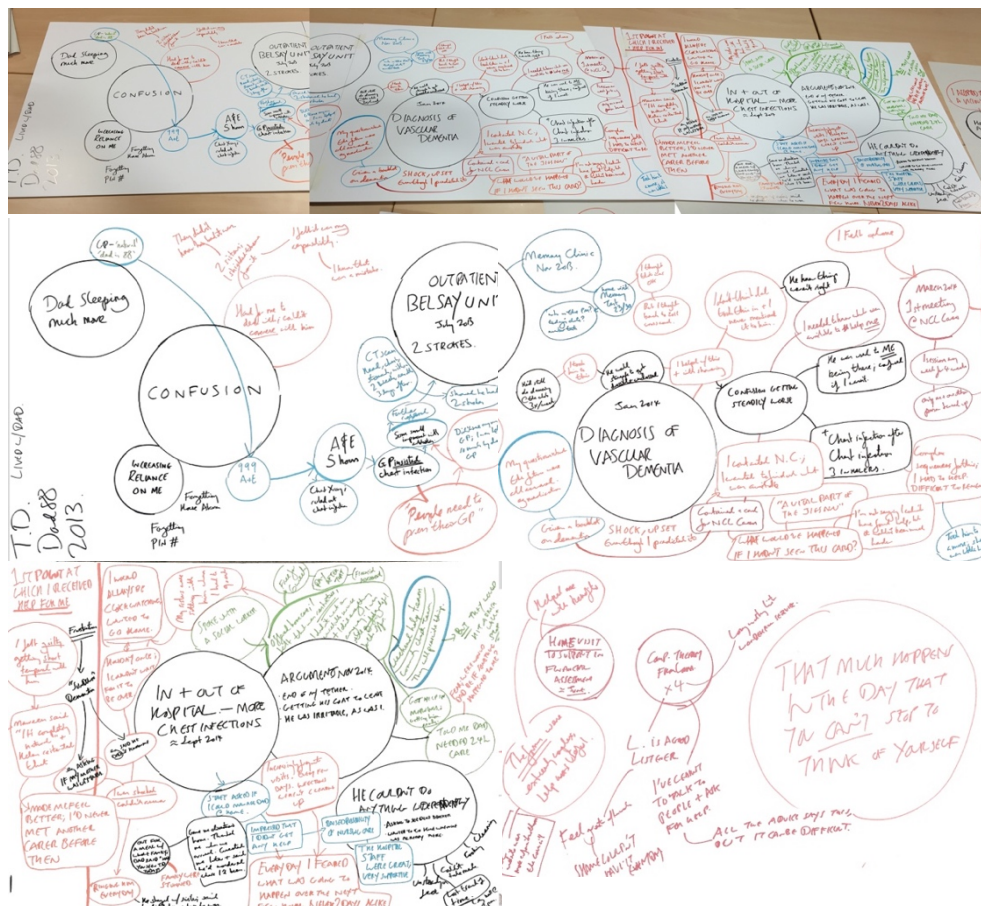


Figure 2. Samples of colour-coded "carers experience maps" created by the First Author during interviews with informal, unpaid carers. 11 maps were created, detailing the experiences of 11 individuals caring for family members suffering from dementia.

In decoding the recorded data, the Designer experimented with a number of different visualisation styles (Figure 2). The following examples (Figures 3 to 8) show different interpretations of a single carer's map across the period 2012 – 2015.

Visualisation Iteration 1



Sample of a map created during an interview with a carer, spanning the period 2012 - early 2015

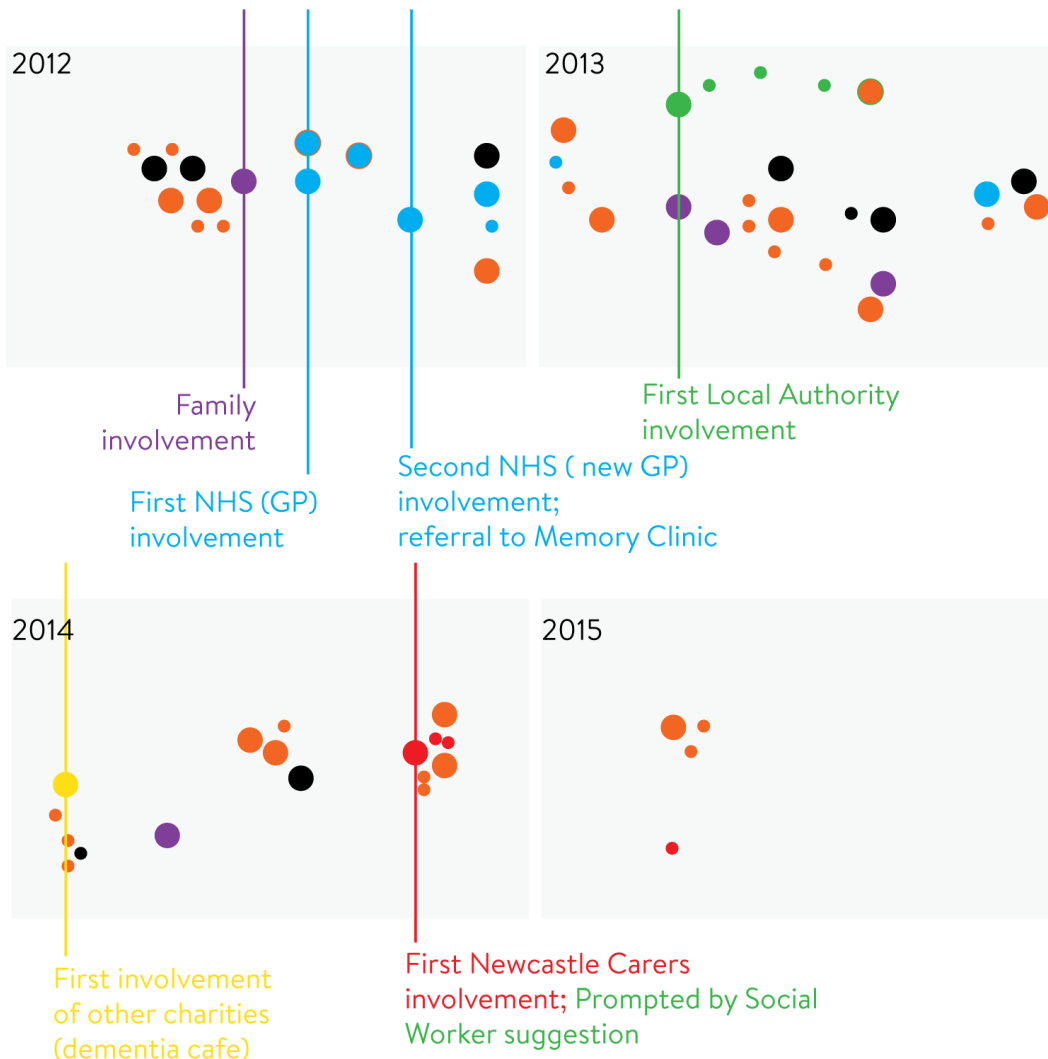


Figure 3. Initial Attempt to Decode Map Data

The various services accessed by the carer are distinguished by colour. Placement of the circles correspond to their position on the hand-made maps created during each interview. This interpretation removes almost all text from the original data, which limits their usefulness, although it does highlight that Newcastle Carers did not become involved until over 2 years after the carer first sought assistance from their GP.

Visualisation Iteration 2

This second attempt to decode the map data focussed on separating the individual services into distinct timelines (Figure 4). Arrows point up to indicate a positive interaction, and down to indicate a negative one. Circles indicate a “neutral event”, i.e. one which is objectively neither positive nor neutral. Explanatory text next to each event gives further information about the specific issues encountered by the carer. However, separating the information into distinct timelines makes it more difficult to recognise connections between the actions of different groups and organisations.

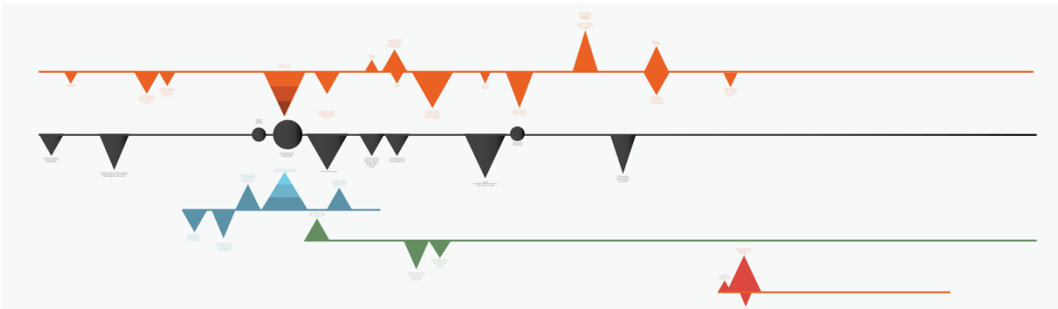


Figure 4. Second Attempt to Decode Map Data

Visualisation Iteration 3 (final iteration)



Figure 5. Key developed for the final iteration of the map data

Figure 5 details the Key developed for the final iteration of the map data. Each colour corresponds to a different organisation, group, or service involved in the carer’s experience.

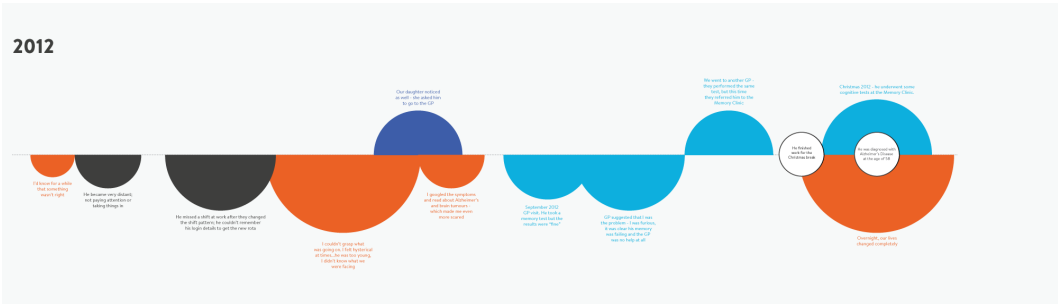


Figure 6. Carer’s Journey, 2012 (Final Iteration)

Each map is divided by a horizontal line in the centre of the page (Figure 6). All information above the line corresponds to a “positive” interaction; all information below the line indicates a “negative” interaction. Explanatory text offers further context to each of these interactions. This map shows a gradual build-up of negative experiences, interspersed by some positive assistance from friends and family, as well as the NHS.

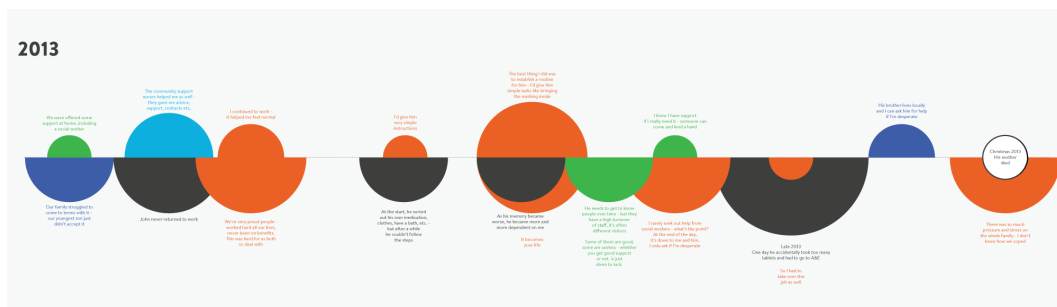


Figure 7. Carer's Journey, 2013 (Final Iteration)

The following year (2013), this carer continued to experience significant difficulties, with only occasional positive experiences (Figure 7).

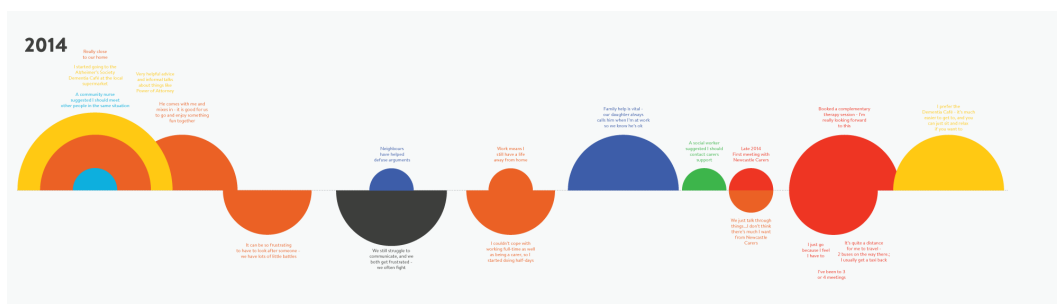


Figure 8. Carer's Journey, 2014 (Final Iteration)

At the start of 2014, this carer accessed a “Dementia Café” support group run by the Alzheimer’s Society (far left). This led to a number of positives emotions and interactions (Figure 8). The carer began to access Newcastle Carers’ service towards the end of 2014 (far right), which prompted a mixed response as she considered the Dementia Café to be more useful. The negative experiences continue, although they are significantly mitigated after the carer accessed support for her own needs.

Notation System

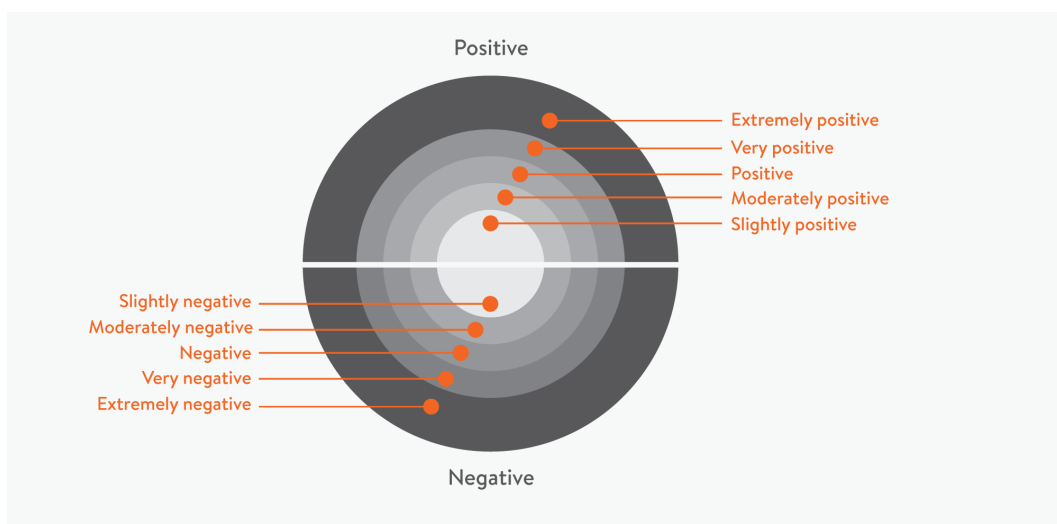


Figure 9. Data Map Notation System

The notation system employs a Likert scale (Likert, 1932) to measure the significance of the issues raised by each carer. The larger the size of each semicircle, the more significant the

carer considered this interaction to be (Figure 9). Carers were invited to a second interview to decide the size of each section, to ensure it accurately reflected their views. The key advantage of this notation system is that allowed the first author to make clear connections between organisations and incidents which might otherwise be unclear. The notation system also allowed the Designer to highlight simultaneous positive and negative outcomes – for example, in situations where the carer experienced a problem but found an effective solution (Figure 10).

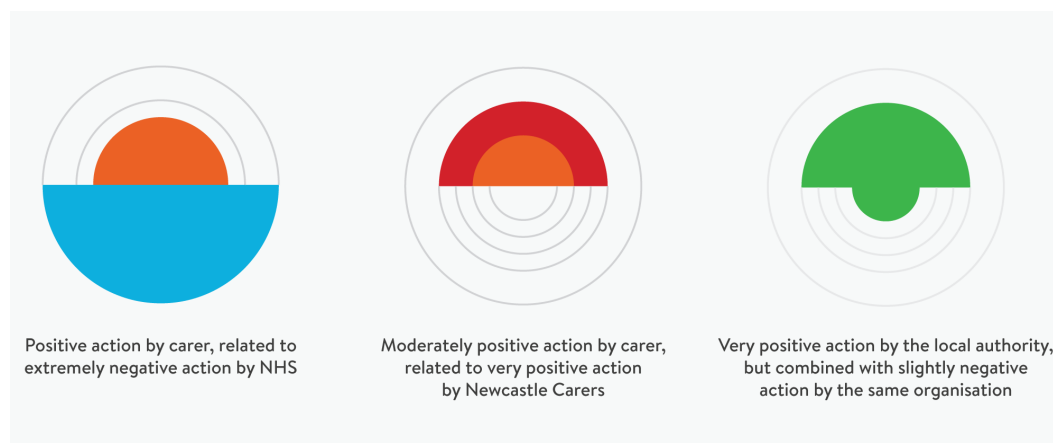


Figure 10. Notation System highlighting relationships between different forms of health and social care support

Figure 10 demonstrates how this notation system can highlight and explore relationships between different forms of health and social care support.

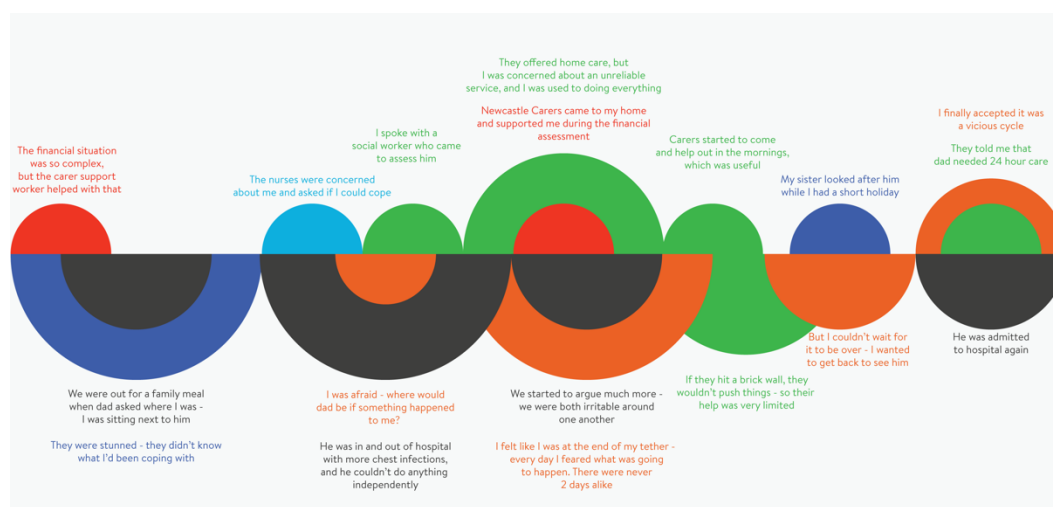


Figure 11. Carer's experience map illustrating the complex interactions between groups and organisations involved in care provision

Finally, Figure 11 shows a detail of one carer's final experience map. It visualises the complex interactions between the numerous groups and organisations involved in supporting the carer and patient.

Data Interpretation

11 carers were interviewed for this project. The complete maps can be viewed at <http://www.cargocollective.com/danielcarey>. Each map is manifestly different from the next; some span over ten years, whilst others are comparatively brief. Each map is an artefact offering crucial insights into the experiences of the individual carer. In common with Arrhenius and Debord, these artefacts offer no specific answers; instead, they raise questions

about how carers engage with existing health and social care services, and prompt consideration of whether these services could or should be disrupted.

Observations

Information Sharing

Carers expressed frustration at having to provide a full account of their problems each time they accessed a new service. This is particularly burdensome during a crisis, when the carer may be experiencing significant physical or emotional pressures. Carers further explained that when services did share information, vital details were often not passed on (Figure 12). Some carers expressed a wish that all services could access and add to the same information – providing each service with a complete and accurate account of the carer's circumstances – rather than placing this burden on the carers themselves.



Figure 12. Completed timelines on display at Institute of Design Innovation, Glasgow School of Art

Clearer Pathways

In all accounts, carers' first contact with dementia services came via a meeting with a General Practitioner (GP) doctor service: either their own GP or that of the cared-for person. Carers explained that they knew to make this contact because of a previously established relationship with the GP, and an understanding that the GP would be able to assist them in some way. In most cases, the cared-for person was referred by the GP for further tests and assistance from specialist dementia services in the region. In other cases, this referral did not take place, or the specialist dementia services did not provide any information to the carer. As a result, the carer was left unaware of the support services available to them, and instead left to cope alone. This typically resulted in the carer struggling to cope with the demands of their role, resulting in crises where the health of the cared-for person deteriorated to the extent that lengthy hospital admission or respite care was required.

This lack of support also had a significant impact on the carer – interviewees complained of social isolation, depression, guilt, feelings of marginalisation and anxiety, and dependence on government benefits after being forced to give up paid employment in order to care full-time. Carers Support Allowance, the government benefit paid to eligible carers on a weekly basis, stops when the carer becomes eligible for the UK state pension. As a result, carers who come to rely on this benefit whilst in employment find that they are no longer eligible to receive it once they retireⁱⁱⁱ. These complaints are typical of the “malignant social psychology” (Kitwood, 1990) encountered by dementia sufferers themselves. The complexity of existing systems of support “remain difficult to understand and navigate – leaving many carers missing out as a result” (Bucker and Yeandle, 2011).

This consistent GP engagement stands in sharp contrast to the seemingly random nature of referrals to carer support services, including Newcastle Carers. No two interviewees came to Newcastle Carers through the same referral process. In some cases, these referrals were made by community nurses or hospital staff; in other cases, carers received contact details via other charities, flyer campaigns, or community outreach work by Newcastle Carers staff. Since Newcastle Carers estimate that they currently assist fewer than 10% of the total number of carers in their catchment area, this suggests that a more consistent referral process could help ensure that a larger number of carers are given information about the services available to them. For example, GPs could be enlisted to identify and refer family carers whenever they encounter a new patient suffering from dementia.

Role of the Local Authority

The carers’ experience of local authority intervention (primarily in the form of social worker involvement) is largely negative. Carers spoke of an initial lack of clarity surrounding the role of the social workers, why they become involved in some cases and not others, and in what way they can assist the carer and cared-for person. This lack of clarity leads to carers and their families perceiving social workers in a negative light. Paid carers (employed by the local authority) are criticised for a frequent turnover in staff, which may prevent them from building a rapport with the carer and cared-for person. The uncertainty surrounding the role of social workers may itself exacerbate existing crises. “People may...delay taking action fearful of having their suspicions confirmed and believing there is nothing that can be done to help in dementia” (Keady and Nolan, 2003). This is unfortunate, as some carers accessed extremely useful support from social workers and paid carers. It appears that there is a great deal of effective assistance available from the local authority in the correct circumstances, but this is undermined by an occasionally dysfunctional or unclear relationship between social workers and carers.

Not Always Firefighting

The maps show distinct periods of ‘crisis’, during which carers encounter a number of emotional and social problems, and require a high level of assistance from one or more health and social care organisations. Perhaps unexpectedly, the maps also show periods during which there are no particular crises to deal with. During these times, the carer may be coping well, even as the cared-for person shows signs of a gradual decline in cognitive and physical ability. In some cases, these ‘quiet periods’ last for over a year. These may offer an opportunity to assist the carer without focusing on solving immediate problems. For example, they may be used to prepare the carer to properly deal with or negate possible future crises, to improve their own health and wellbeing, or to focus on education and career advancement.

The Value of Intangibles

During each interview, the first author (Designer) asked the carers what they felt was most important about the support offered by Newcastle Carers. In each case, the carers stated that intangible support – such as the opportunity to “be heard”, share experiences with other people in similar situations, and honestly express their feelings in a non-judgemental environment – was more important than practical assistance. This insight offers an opportunity for other organisations to establish relationships with carers which extend beyond practical support. The support offered by each service could be made directly meaningful and valuable to the individuals concerned.

Conclusions and Future Work

These maps are the first major outcomes in this AHRC collaborative project with Newcastle Carers. The observations set out above provide the framework for discussion, collaboration, and further exploration between Newcastle Carers, the researchers, and other health and social care services in Newcastle upon Tyne and beyond. The maps themselves propose an alternative visual syntax for understanding the strengths and weaknesses of, and interrelationships between, the numerous agencies involved in health and social care.



Figure 13. Maps presented at Dementia Strategy Meeting, Newcastle upon Tyne, July 2015

These maps have been presented to dementia strategy planning groups in North East England, with overwhelmingly positive feedback (Figure 13). They disrupt the widely-held assumption that all carers receive similar forms of assistance. They demonstrate that the carers experience is not a distinct, repeatable, linear pathway, but a largely decentralised experience closer to the multilinear, rhizomatic model (Deleuze and Guattari, 1998). The maps will be used as the basis for future workshops with local health and social care services, including Newcastle Carers, GPs, the Local Authority, and carers themselves. The aim of

these workshops will be to consider the observations made in this research, and design disruptive interventions to address the issues raised. If innovation is “a system of overlapping spaces rather than a sequence of orderly steps” (Brown, 2009), the results of these workshops may inform the role of, and potential uses for, these maps in future interventions.

As each map illustrates a manifestly different experience, they help support the assertion that there is no specific ‘pathway’ for dementia carers. Rather than a strict hierarchy of support in the mould of the *scala naturae*, there is an interconnected and often chaotic network of support which can be accessed through a wide variety of different paths. In this research, a key disruptive insight is the indication that all participants in this network – including GPs, carers, social workers, and third sector support – have the opportunity to act upon this interconnectivity, and collaborate rather than pursuing entirely separate agendas – with the eventual goal of the “transformation of existing conditions into preferred ones” (Simon, 1996). These maps highlight the symbiotic relationship between health and social care services that initially appear quite distinct, and suggest that “when everything is connected to everything else, for better or worse, everything matters” (Mau, 2005).

Acknowledgements

The authors gratefully acknowledge the generous funding provided by the AHRC, without which this research could not have been undertaken. Thanks go to the staff and volunteers at Newcastle Carers, who played a crucial role in developing the ideas behind this research, and to the Alzheimer’s Society for assisting in identifying suitable interviewees. The authors are extremely grateful to each of the carers who generously donated their time and expertise to help create these maps.

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Understanding the Influence of the Co-Design Process on Well-Being

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Abstract

The aim of this paper is to explicitly link co-design to well-being and expand the conversation about the influence of the co-design process on well-being. This paper highlights considerations for co-design researchers and practitioners interested in enhancing the value created through co-design. The authors draw from discussions in transformative service research (TSR) to better understand how co-design influences well-being. Co-design is defined as a process of joint inquiry and imagination where diverse actors share and combine their knowledge. Based on the broad definition of service set out in service-dominant logic (SDL), the authors take the position that co-design is a form of service and therefore stress the relevance of TSR to co-design. The paper identifies six dimensions of well-being discussed in TSR that extend and highlight gaps in co-design literature related to the influence of the co-design process on well-being. The authors suggest that these dimensions become a component of future evaluations of the co-design process and point to opportunities for further research related to how co-design influences well-being and supports transformation.

KEY WORDS: co-design, well-being, transformation, transformative service research, service design, service-dominant logic

Introduction

The purpose of this paper is to highlight the link between co-design and well-being and expand the discussion about how co-design influences well-being. This paper draws from the emerging area of transformative service research (TSR) to better understand the relationship between co-design and well-being. Service-dominant logic (SDL) is used to bridge these two areas of research. By integrating these disconnected research areas, this paper makes a contribution to co-design research and practice, suggesting an expanded role for the co-design process.

This paper will help design researchers and designers optimize the total value created through co-design by considering influences on well-being not previously discussed in design literature. Through an examination of the documented impacts of co-design on well-being, this paper opens up a host of new opportunities for co-design practice and research.

In the field of design, growing attention has been paid to participatory design processes, especially co-design (Steen, Manschot & De Koning, 2011; Saunders & Stappers, 2008). Co-design involves stakeholder participation throughout the design process and has been linked to transformative aims (Saunders & Stappers, 2008). However, there are many concerns in design literature about the readiness of co-design to realize transformation (Carr, Sangiorgi, Büscher, Cooper & Junginger, 2009; Donetto, Pierri, Tsianakas & Robert, 2014; Freire & Sangiorgi, 2010).

Recently, TSR, which explores the relationship between service and well-being, has received increasing interest and has been highlighted as the top priority in service research (Anderson & Ostrom, 2015, Kuppelwieser & Finsterwalder, 2016). Because of the overlapping intentions of co-design and TSR to catalyse transformation, TSR may be able to aid in the analysis and development of co-design's transformative capacities.

To help make the link between these fields, the authors use service-dominant logic (SDL) to position co-design and understand how and why TSR is relevant. For the purpose of this paper, the authors take the position that co-design is a form of service, based on findings from previous research applying service-dominant logic to design for service research (Wetter-Edman, Sangiorgi, Edvardsson, Holmlid, Grönroos, & Mattelmäki, 2014).

The authors of this paper focus exclusively on the process of co-design and its influence on well-being, bringing in insights from TSR & SDL. The paper does not offer a comprehensive analysis of how current literature on co-design, TSR & SDL, align and diverge, but does point to some promising possibilities at their intersection.

This paper begins by grounding the process of co-design in the conceptual foundation of SDL. The authors then develop how SDL reconfigures co-design as service, based on an understanding that service is a process of applying skills and knowledge for the benefit of another actor (Vargo & Lush, 2008). Next, the authors introduce TSR and describe how it aligns with co-design research using this alternative conceptualization of co-design. Key dimensions of well-being are identified from TSR and compared to discussions in existing co-design research. The authors of this paper highlight how TSR can expand the conversation in co-design research about how co-design influences well-being. Finally the authors reflect on the contributions that TSR makes to co-design research and suggest future research directions.

Grounding Co-Design in SDL

While co-design has been gaining in popularity, there are differing usages and interpretations of its meaning in the literature (Mattelmäki & Visser, 2011). One common definition of co-design is “collective creativity as it is applied across the whole span of a design process” proposed by Sanders & Stappers (2008). This definition has been further developed, describing co-design as a process of joint inquiry and imagination where diverse actors share and combine their knowledge (Steen et al., 2011; Steen, 2013).

Co-design has a close relationship with service design. Co-design is seen as a practical approach for engaging service users, service providers, and other stakeholders in the design of a service (Freire & Sangiorgi, 2010; Trischler & Sinnewe, 2012). Further, it is argued that co-design is central to service design research and practice because of the collaborative nature of services (Sangiorgi, Prendiville & Ricketts, 2014).

Researchers have begun applying the conceptual foundation of service-dominant logic (SDL) to service design and design more broadly (Cautela, Rizzo, & Zurlo, 2009; Eneberg, 2011; Sangiorgi & Prendiville, 2014; Wetter-Edman, 2009; Wetter-Edman et al., 2014). This research suggests that SDL can help to re-position and better understand the design process (Wetter-Edman et al., 2014). Co-design is noted as an important area of mutual relevance for design and SDL (Wetter-Edman et al., 2014; Wetter-Edman, 2009).

SDL is a rapidly growing and evolving body of literature that provides a conceptual foundation for thinking about service (Vargo & Lusch, 2008; 2015). SDL can be contrasted with traditional goods-dominant logic, which focuses on producing units of output through a value chain (Lusch, Vargo & Wessels, 2008). SDL shifts the thinking from *services* as a “category of market offerings”, as is often discussed in goods-dominant logic, to *service* as a “perspective on value creation” (Edvardsson, Gustafsson & Roos, 2005). In SDL, service is defined broadly as a process of applying skills and knowledge for the benefit of another actor (Vargo & Lusch, 2008).

An important tenet of SDL is the process of value creation, generally called co-creation (Vargo & Lusch, 2008). Vargo and Lusch (2004; 2008) state that value is collaboratively created and the beneficiary is always a co-creator of value. Further, it is noted in SDL that value is uniquely and phenomenologically determined by the beneficiary in use and in context, including the social context (Edvardsson, Tronvoll & Gruber, 2011; Vargo & Lusch, 2004; 2008). It is also important to highlight that value co-creation relies on the integration of resources by all actors involved, and that value is co-created within dynamic system of actors and resources referred to as a service ecosystems (Vargo & Lusch, 2008).

Understanding of co-creation in SDL has challenged service researchers to re-think the terms “producer” and “consumer”, which has contributed to the adoption of the term “actor” (Vargo & Lusch, 2008). The shift away from these binary roles is also mirrored in co-design research, where researchers have chosen the term “partner” or “co-creator”.

This theoretical understanding of co-creation in SDL is well aligned with the practice of co-design. Co-design recognizes the role of diverse actors and the benefit of integrating their unique knowledge and skills (Steen et al, 2011). It offers an approach and set of tools for collaboratively creating value (Wetter-Edman et al., 2014). Co-design involves creative, participatory methods, such as design games (Brandt, 2006), context mapping (Visser, Stappers, & Van der Lugt, 2005) and tangible objects (Clatworthy, Oorschot & Lindquist,

2014), that help actors to creatively and effectively integrate resources. Ultimately, co-design offers a practical means to co-creation described in SDL.

While co-creation and co-design are significantly aligned it is important to highlight the ways in which they are distinct. Co-creation is a broad term in SDL, referring to interactions between actors that generate value. Co-design, on the other hand, is specifically referring to an involvement of actors that is sustained throughout the design process. While co-creation tends to refer to the value creation in use, co-design generally refers to value creation prior to use. SDL provides a valuable foundation for positioning co-design within the value creation process and can help to re-frame the role of co-design in relation to service.

Seeing Co-Design as Service

Previous research exploring the connection between ‘design for service’ and SDL has begun to sketch out a variety of implications for service design (Wetter-Edman et al., 2014; Sangiorgi & Prendiville, 2014). Recent ‘design for service’ literature highlights how co-design processes enable the co-creation of value as part of the total value creation process in service, as described in SDL (Wetter-Edman et al., 2014). Wetter-Edman et al. (2014) expand on SDL’s notions of value being determined in-use and in-context highlighting that value is also created in designing, if the process is participatory. Supporting this thinking, co-design literature highlights a variety of benefits or reflections of value created through the co-design process for the different actors involved (Steen et al., 2011).

SDL sees service as a process of applying skills and knowledge for the benefit of another actor (Vargo & Lusch, 2008). This understanding of service is strikingly similar to the definition of co-design as a process of joint inquiry and imagination where diverse actors share and combine their knowledge (Steen et al., 2011; Steen, 2013).

Furthermore, it has been stated in SDL that any interaction can be thought of as service as long as it creates value for an actor (Skålen, Aal, & Edvardsson, 2015). Based on this understanding, co-design not only contributes to the development of services, but it is, in and of itself, a form of service. This understanding of design as service builds easily from recent design for service research, but lies in contrast to traditional understandings of service design that were rooted in goods-dominant logic referring to the designing of services (see figure 1).

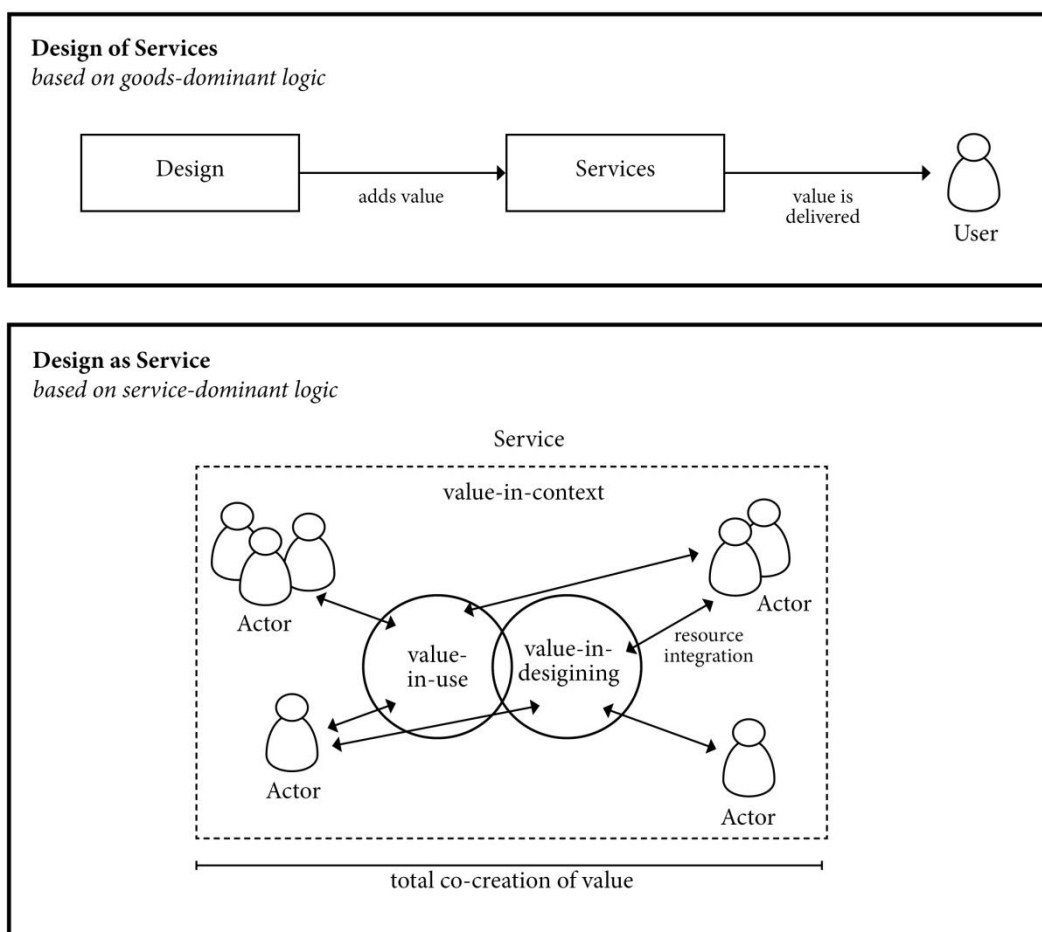


Figure 1. Comparison of “design of services” and “design as service”

Based on SDL, the value co-created in the process of co-design through the integration of resources by diverse actors is not just a by-product, but a fundamental and largely untapped component of total value creation. Within design research and practice emphasis has been placed on optimizing value realized in the service experience or in use. The value co-created in the process of designing has not been fully discussed or leveraged. For example, service designers in health care have traditionally been focusing on designing services that improve the patient experience. What is not being fully acknowledged is the value that is co-created during the design process for patients and other actors involved in co-design and how the design process influences their well-being.

As the participatory process of co-design contributes to value co-creation, it is a form of service. It is important to recognize that the authors are not arguing that co-design is a service, as in a type of offering in the marketplace, although it could be. Rather the authors argue that co-design is a form of service, as understood in SDL to be a process where actors integrate resources to co-create value.

Aligning Co-Design and TSR

Understanding co-design as a form of service reinforces the relevance of applying insights from transformative service research (TSR) to the co-design process. TSR has emerged in the last few years as a prominent research area focused broadly on any service research with

the goal of creating improvements in the well-being of individuals and collectives (Rosenbaum et al., 2011, Kuppelwieser & Finsterwalder, 2016). TSR might help to address some important gaps and critiques of co-design related to its transformative aims.

While there are growing hopes and expectations of co-design to catalyse transformation (Sangiorgi, 2010), there are several concerns within the literature about its ability to realize this goal. Some researchers suggest that design processes closely connected to end users can only ever lead to incremental change (Norman & Verganti, 2014). Others have noted a difficulty shifting from traditional hierarchical roles in services to partnership within the co-design process (Carr et al., 2009; Donetto et al., 2014; Sanders, 2008; Wetter-Edman, 2012). Further, there are suggestions that co-design supports empowerment of participants in the process. However, there is need to evaluate whether co-design is indeed realizing these goals (Wetter-Edman, 2012). Empirical studies of co-design practice have also highlighted the need to better address the political dimensions, power relations, and ethics involved in the co-design process (Donetto et al., 2014; Freire & Sangiorgi, 2010; Sangiorgi, 2010; Steen, 2013). In general, while there are discussions about co-design's transformational aims in the literature, research suggests that there is a need for a systematic evaluation of results related to this goal and the outcomes of the co-design process (Donetto et al., 2014; Freire & Sangiorgi, 2010; Steen et al., 2013; Sangiorgi, 2010).

TSR may shed light on some of these concerns. TSR proponents call for more attention on how service enhances or harms consumer well-being, treating outcomes related to well-being as important, managerially relevant, and worthy of study (Rosenbaum et al., 2011). TSR researchers argue that service fundamentally affects well-being and well-being is not possible without service (Ostrom et al., 2010), underlying the importance considering the impacts of service on well-being.

TSR seeks transformation in service and service systems with an explicit focus on well-being, such as health care, as well as those where that is not the intended focus, such as coffee shops (Rosenbaum et al., 2011). Certainly, service impacts well-being, but it is also proposed that the majority of services have transformative potential (Rosenbaum et al., 2011). In addition, it is noted that enhancing well-being is likely to enhance productivity, create a competitive advantage for organizations, and increase customer loyalty to a service (Rosenbaum et al., 2011). Developing new measures of the effects of service on individuals and societies is a key priority within this area of research so that impacts on well-being can be better understood and enhanced.

While there is clear alignment between the goals laid out in co-design and TSR, to date there has been no research explicitly connecting these two research areas. Using an SDL lens helps make this connection more explicit. If we understand co-design as service, then the body of literature related to TSR is extremely relevant and applicable, not just for co-design processes in health care, but for all of co-design practice. One key consideration that comes from the re-conceptualization of co-design as service in the context of TSR is the need to understand the influence of the co-design process on well-being.

How Co-Design Influences Well-Being

Understanding and enhancing well-being through service is the overall purpose of TSR. The emerging area of TSR highlights several important dimensions of well-being to be considered when exploring the impact of service on well-being (Anderson et al., 2013,

Anderson & Ostrom, 2015; Kuppelwieser & Finsterwalder, 2016; Ostrom et al., 2010; Rosenbaum et al., 2011). These dimensions include:

- Micro to macro-levels of well-being
- Impacts on diverse actors and entities (including individuals, families, consumer entities, service entities, communities, etc.)
- Eudaimonic well-being (human flourishing and the realization of potential) and hedonic well-being (happiness and pleasure)
- Positive outcomes (uplifting value creation) and negative outcomes (destruction of value)
- Intended and unintended impacts on well-being

In addition, to the above dimensions, TSR research discusses the potential for systemic transformation as actors use their agency to alter social structures and institutional arrangements (Blocker & Barrios, 2015; Edvardsson, Skålen & Tronvoll, 2012). For the purpose of this paper, transformation is positioned as the sixth dimension of well-being as it is widely discussed and referenced in TSR.

To gain a better understanding of the contributions TSR can make to understanding how co-design influences well-being, it is pertinent to explore the extent to which these dimensions of well-being are already being discussed in co-design literature.

In terms of levels of analysis, existing research on co-design seems to focus mainly on well-being outcomes at the micro or meso-level. While research by Patricio, Fisk, Falcão e Cunha & Constantine (2011) describes the role of service design at multiple, interconnected levels within complex service systems, there is not yet an explicit analysis of how the design process influences well-being across these levels. For example, Steen et al. (2011) identify three categories of benefits from the co-design process: benefits for the project, the service user and the organization. These benefits all lay at the micro or meso-level, and the macro-level or systems-level benefits are not discussed.

Similarly, current co-design literature tends to focus on the implications for only a select number of entities. It highlights a number of benefits related to well-being for end users, including enhanced satisfaction and empowerment, and for service entities, including greater levels of creativity among staff and better relationships (Hussain, Sanders, and Steinert, 2012; Steen et al., 2011; Wetter-Edman, 2012). However, there is an absence of analysis of the impacts on other entities or actors including families, service systems, neighbourhoods, and communities.

In co-design literature there is reference to the notion that co-design enables participant empowerment by engaging people as experts and employing their competencies throughout the process (Taffe, 2015; Wetter-Edman, 2012). While empowerment contributes eudaimonic well-being, described in TSR as human flourishing, the broader impacts on eudaimonic well-being and hedonic well-being, understood as happiness or pleasure, are not sufficiently discussed in co-design literature.

TSR also draws attention to the importance of positive and negative impacts on well-being (Anderson & Ostrom, 2015). To date there has been limited to no discussion in co-design literature of negative impacts of the process on well-being. As result, conversations about how to reduce and mitigate negative impacts of the co-design process are absent.

Additionally, TSR distinguishes between unintended and intended impacts on well-being. Generally, co-design research has not differentiated between these, but tends to focus its attention on intended benefits and impacts.

Design research has outlined the potential of participatory design processes to serve as a means for social transformation, but further analysis is needed to systematically evaluate the ability of co-design to realize this goal (Sangiorgi, 2010).

The following chart summaries the dimensions of well-being discussed in TSR in comparison to current discussions in co-design research.

Dimensions of Well-being	Description in TSR	Related Discussion in Co-Design Research
Levels	Micro to macro levels of well-being	Focused on outcomes at the micro- & meso-levels (e.g. individuals and organizations)
Entities	Impacts on diverse actors and entities including individuals, families, consumer entities, service entities, communities, etc.	Focused on benefits for a small number of entities - mainly consumer and service entities
Types	Eudaimonic well-being (human flourishing and the realization of potential) and hedonic well-being (happiness)	Does not distinguish between types of well-being, mainly highlights empowerment-related benefits
Outcomes	Positive outcomes (uplifting value creation) and negative outcomes (destruction of value)	Describes some positive outcomes related to well-being, but ignores real and potential negative outcomes
Intentions	Intended and unintended impacts on well-being	Issue of intention is not explicitly discussed, but seemingly focuses on intended impacts
Transformation	Actors using their agency to change institutional arrangements	Conversation of transformative potential of co-design has been started, but lacks a systematic evaluation

Chart 1. Comparing dimensions of well-being to existing co-design research

Discussion

The aim of this paper was to connect co-design to well-being and expand the discussion about the influence of co-design on well-being. Using SDL as a conceptual framework re-framed co-design as service, reinforcing its influence on well-being and the relevance of TSR.

By comparing the dimensions of well-being from TSR to discussions in co-design research, one can see the need to expand the analysis of co-design's impacts on well-being in the following ways:

- Enhancing understanding of how co-design does or can influence well-being at multiple-levels, including the macro-level (e.g. the influence of co-design on service ecosystems and society);
- Considering how co-design impacts a broader range of actors within service systems, beyond consumer and service entities;
- Deepening exploration of how co-design contributes to different types of well-being, including the extent to which co-design leads to human flourishing and happiness;
- Monitoring co-design's negative outcomes related to well-being and discussing opportunities for mitigating or reducing these outcomes;
- Understanding differences between intended impacts and realized impacts to inform expectations and optimize all impacts on well-being, including those that are unintended;
- Evaluating the ability of co-design to support actors in changing institutional arrangements to enable positive transformation.

By employing the dimensions of well-being to guide future analysis, a more holistic understanding of the influence of the co-design process on well-being can be developed. The authors of this paper suggest the dimensions of well-being could become a useful tool for evaluating the co-design process and an important component of a systematic evaluation of co-design called for in the design literature (Donetto et al., 2014; Freire & Sangorgi, 2010; Steen et al, 2011).

By making explicit the role of co-design in influencing well-being and broadening the conversation about its impacts, the findings point to opportunities for designers to better optimize the total value created through co-design. By considering and managing not only the impacts of what is being designed, but also the impacts of the design process, designers can work to enhance the overall influence of co-design on well-being.

Applying TSR to co-design also illuminates a number of future research opportunities. First, to test these dimensions and further understand the current impacts of co-design on well-being, empirical research is needed. By using the dimensions of well-being as an interpretive framework for the analysis of several co-design case studies, research can better illuminate the full spectrum of influences of co-design on well-being.

The authors of this paper also see an opportunity to more deeply explore the role of co-design in catalysing transformation related to well-being. In future research, the authors plan to apply institutional theory in the analysis of co-design practice in health and social settings. This could help better understand the role of co-design in creating, maintaining and disrupting institutional arrangements, such as rules and norms, related to well-being.

Furthermore, there is an opportunity to not only analyse the *process* of co-design and its contributions to well-being and transformation, but also co-design's role in realizing service innovations to enhance well-being. Is co-design able to realize radical service innovations to support transformation toward well-being? The authors see that further research is needed specifically on the role of co-design in service innovation as it relates to well-being.

From this future research a more holistic understanding of co-design's strengths and weakness in enhancing well-being can be developed. Then specific deficits of co-design related to its influence on well-being and transformation can begin to be addressed. Research focused on specific opportunities for improving co-design impacts on well-being could make valuable contributions to co-design theory and practice.

Together, this collection of future research could greatly expand our thinking about the multiple ways co-design influences well-being. This conceptual and empirical research will help to refine the co-design approach to enhance well-being impacts and legitimize further use of co-design in services and by actors interested in health and well-being.

Lastly, further research on contributions that co-design can make to the areas of TSR and SDL is needed. Initial reflections suggest that co-design may be able to offer a practical approach to resource integration, value co-creation and enhancing well-being through service. Perhaps, co-design might even offer an alternative approach to the top-down, consumption-based services criticized for their negative impacts on well-being in TSR (Rosenbaum et al., 2011).

Conclusion

By grounding co-design in SDL and applying insights from TSR, this paper has articulated a link between co-design and well-being and illuminated an expanded role for co-design in enhancing well-being through the design process. It has also shown that TSR can help to guide a more holistic analysis of co-design's impacts on well-being. By investigating impacts across six dimensions of well-being, design researchers and designers can more comprehensively and systematically evaluate the influence of the co-design process on well-being.

Empirical research to test and refine an approach to evaluation based on these dimensions is needed. The paper also creates a foundation for further research on the multiple ways co-design may influence well-being, including through institutional change and service innovation. Through future research planned by the authors of this paper, the hope is to suggest ways that co-design might optimize positive impacts on well-being and enhance its transformative capacities.

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A service development process framework for services including people with disabilities

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Abstract

The service sector participation has become increasingly representative in the world economy. Thus, it becomes necessary to invest in research related to processes for the proper development of these services, starting from reference processes, represented by models. Its importance is emphasized even more in multidisciplinary areas, such as the Assistive Technology. To contribute in this sense, this paper has as a main objective to develop a framework for the services development process for People with Disabilities. The two main methodologies used were the exploratory research, for the literature review, and the theoretical and conceptual approach, to obtain the framework. The framework presented as a result was developed based on existing models, the elements of the Service- System, Assistive Technology-System and on the principles of Universal Design. From the framework, it is expected to obtain reference models for the services development process for People with Disabilities.

KEYWORDS: Service Development Process, Assistive Technology, People with Disabilities, Universal Design

Introduction

Global statistics show, by indicators such as GDP and employment generation, the service sector growth to the economy. The Service Development Process (SDP) is a business process and is essential for the survival and growth of services organizations. For this process to be effective, it should involve the development of service requirements that meet the needs and demands of consumers. This is done by making use of a wide range of information coming from various sources, generating a great variety of requirements to be met.

To ensure that nothing is forgotten in the SDP and that this process can be repeated for future developments, it is important to develop products and services from reference processes. Its importance is emphasized in multidisciplinary areas, such as the Assistive Technology (AT) in which there is a great diversity of professionals working directly with the People with Disabilities (PwD), such as physiotherapists, occupational therapists, educators,

etc. These professionals should interact with products and services developers and therefore a reference model is required that meets the specifics of each area.

More than a billion people worldwide have some kind of disability, according to the World Report on Disability, published by the World Health Organization and the World Bank (WHO, 2011). The term AT was officially established in 1988 as an important legal element within the US legislation, known as Public Law 100-407, which makes up, along with other laws, the Americans with Disabilities Act. This set of laws regulating the rights of citizens with disabilities in the US and has served as the basis for PwD studies worldwide.

Many of the existing AT definitions are currently based on products logic, as originated from the definition of AT devices under US law. In addition to defining devices, the US legislation also defines AT services, such as any service to assist PwD in the selection, acquisition or use of an AT device (Public Law 108-364, 2004). However, the focus of the definition remains the product, having services considered in isolation only as support activities for product applications.

Although AT definitions refer not only to products but also to services, there were no papers found that deal with the SDP for PwD. Services for PwD, where they exist, do not have a systematization for their development, or are designed for people without disabilities and later adapted for PwD, or simply do not exist for most of the needs of PwD, due to the large amount of specificities of each individual.

It reinforces, therefore, once again, the adoption of models for the SDP, describing activities seeking the delivery of value to customers. Thus, SDP for PwD shows up as an area that still has incipient exploration and lacking in research for better understanding and advancement of existing theories.

It was still considered as background for the proposed framework, the use of the principles of Universal Design, which aim to develop products and services to the widest possible range of users, seeking understanding and respect for diversity. So, the proposed framework aims to stimulate the service development for all individuals. Thus, the services developed from a reference framework for PwD, applying the principles of Universal Design can also be used by people without disabilities. The opposite would not be possible, since it would not meet the PwD specificities.

Thus this paper aims to propose a framework for the SDP to PwD. The methodology used was the exploratory research, for a wide search with several keywords in databases, looking for SDP models, for Service-System elements and for AT-System elements. The theoretical and conceptual approach was used to obtain the framework, based on the methodology of Value Creation Cycle of Stanke & Murmam (2002), on the elements of the Service-System and AT-System, on the principles of Universal Design and on the SDP models.

SDP models

First the keywords identified on the subject of research were "service development process", "service design process", "service development model", "service development project" and "service development method". These keywords were used to identify and access publications in databases whose scope relate to the theme of this research. After reading the summary, introduction and conclusion, additional keywords used in publications were identified, such as "service engineering process" and "service innovation model". The total

number of documents raised was 1229. After eliminating duplicates, reading title and abstract, and, in case of doubt, a scan of the full text, it reached a final portfolio of 97 documents.

The models classification was based on Fitzsimmons & Fitzsimmons (2000): (i) partial models, which only related to certain steps of the SDP; (ii) translated models, based on the product development model proposed by consultancy Booz, Allen and Hamilton in 1982; and (iii) complete models, which have a holistic view of SDP. Of the 97 documents, 45 presented SDP models, represented almost half of the portfolio. Among these, none has been identified as a translated model and only three were classified as partial models. The complete models were categorized into four classes. Models classified as conceptual had the highest representation, with 35.6%, just ahead of the phase models, with 31.1%, and not too far from macrophases models, with 22.2%; the models who presented details of its phases in activity levels were less representative, with only 11.1%. The documents that did not show models were grouped into five categories of contributions to the SDP: specific applications, methods and tools, customer integration, systemic view, success factors and micro and small enterprises.

Service-System

For Hitomi (1979), a system is a set of interrelated elements which together perform a particular function; since in the literature review no SDP models for PwD were found and taking up the SDP as a system, it was sought in this topic a classification of the elements that make up the Service-System, aiming to organize, propose and manage a SDP. The visualization of the service components had already been identified by Fynes & Lally (2008) as a key discussion area, aiming for their ease of operation, by means of a holistic view.

It was sought to identify the Service-System elements by the definitions of service that were found in the literature. However, because of its nature and diversity, the definition of services has not been easily formulated. Characteristics of specific services such as intangibility, simultaneity between creation and consumption, perishability and heterogeneity (Fitzsimmons & Fitzsimmons, 2000), makes this task even more complicated. For Grönroos (2003), service is one procedure consisting of a series of more or less intangible activities, interactions between the customer and the service personnel and/ or physical goods and/ or provider systems that are provided as solutions for customer problems. For Goldstein et al. (2002), it is a set of tangible and intangible elements, which combine to create a service.

None of the publications analyzed (Fitzsimmons & Sullivan, 1982 apud Ganesi & Corrêa, 1996; Lovelock, 1992 apud Lovelock & Wirtz, 2006; Goldstein et al., 2002; Fynes & Lally, 2008) showed a complete definition of the Service-System elements. Thus, Forcellini (2013) introduced the concept of Service-System with seven elements (Figure 1):

- » Process: set of behaviors, activities or tasks logically interrelated, carried out in front and back office and supporting the service delivery
- » Information: data and information generated and provided by customers or companies, vital to perform the service
- » Facilitating goods: materials that are consumed, purchased or provided in the back and front office, to perform the service
- » Supporting facility: physical resources and facilities necessary for the services provision

- » Product: equipment, machinery and devices necessary and/ or associated with the services provision
- » People: customers, front and back office employees, suppliers, and others directly or indirectly involved in providing the service
- » Service: benefits that are perceived by customers and considered to the service features

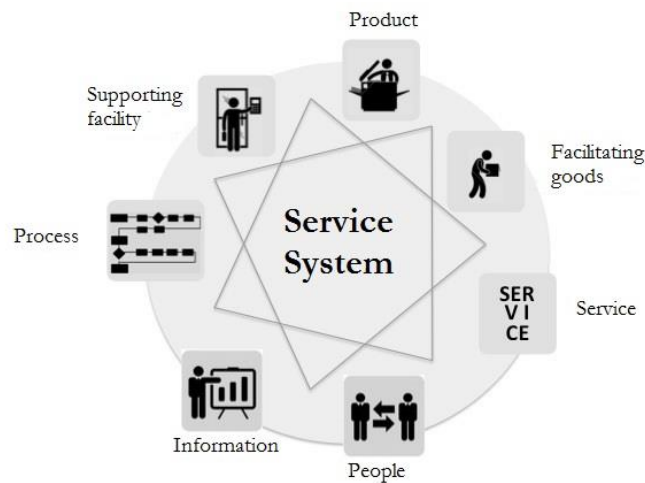


Figure 1 – Service-System proposed by Forcellini (2013)

Without this concept, the development would be liable to failure by not explicitly showing some of the Service-System elements. This would occur, for example, when using the Service Package concept of Fitzsimmons & Sullivan (1982) apud Giansesi & Correa (1996), which were not made explicit processes, such as people and technology, requiring these assets to be implicitly considered. Similar failures would occur with other models presented.

Assistive Technology-System

Since the appearance of the term Assistive Technology in 1988, there have been an increasing number of researches focused on the technological application to solve PwD problems. The first publication involving a set of principles in this sense occurred in 1994 with the first edition of Cook & Polgar (2008), whose concepts have been referenced for PwD studies.

Cook & Polgar (2008) presented an AT-System definition, consisting of a device, a human operator who has a disability and an environment in which the activity should be developed; i.e. the AT-System consists of someone (PwD), doing something (activity), somewhere (environment). This system recommends devices that meet the PwD needs, consistent with their capacities, assisting them to perform certain functions within their life context.

Searching for literature relationships amongst these elements, five models of AT-System were analyzed: (i) International Classification of Functioning, Disability and Health (ICF) (WHO, 2001), (ii) Canadian Model of Occupational Performance (CMOP) (CAOT, 2002), (iii) Model of Human Occupation (MoHO) (Kielhofner & Forsyth, 1997 apud Stamm et al., 2006), (iv) Occupational Performance Model – Australia (OPM-A) (Chapparo & Ranka, 1997) e (v) Human Activity Assistive Technology Model (HAAT) (Cook & Polgar, 2008).

The person, activities and environment were similar elements presented in these models. However, the role and considerations of AT are not specifically mentioned in CMOP, OPM-

A and MoHO, but in the ICF, as an aspect of the environment, relating to products used in daily life (WHO, 2001).

Beginning with the AT-System definition and based on CIF and CMOP, Cook & Polgar (2008) proposed the HAAT model (Figure 2), in order to relate to people, activity and environment, aiming to select and evaluate AT, including explicitly AT as a component for daily activities. Thus, differently from the other models, HAAT has four components: human, activity, AT and context. The human component is composed of physical, cognitive and emotional elements; activity includes personal care, work and leisure; AT involves intrinsic and extrinsic enablers; and context encompasses physical, social, cultural and institutional contexts.

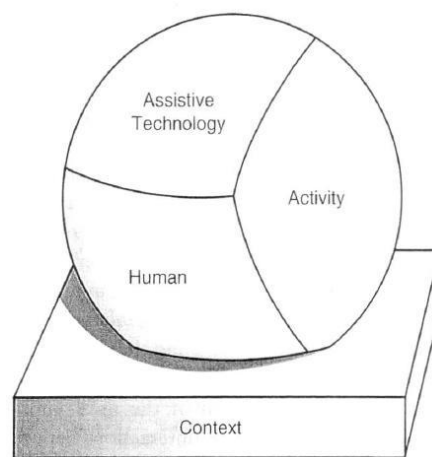


Figure 2 – HAAT model by Cook & Polgar (2008)

Framework

As the classification of SDP models proposed in the theoretical foundation, the framework developed the following levels of detail: macrophases, conceptual, phases and activities. For the framework to be lean, with activities that add value and avoid waste, it was based on the three phases of the Stanke & Murmam (2002)'s Value Creation Cycle methodology, characterizing the macrophases for the proposed framework: Value Identification, Value Proposition and Value Delivery.

Although they were premises for the framework development, these three macrophases were corroborated by the literature. As examples, amongst others, are Deakins & Dillon (2005), Edvardsson (1997) and Kindström & Kowalkowski (2009). In the Deakins & Dillon (2005) helical model, the identify problem phase is in the Value Identification macrophase; generate alternatives, evaluate alternative and soft-coded solutions are within the Value Proposition; and hard-code solutions characterize the Value Delivery. Similarly, Edvardsson (1997) model's macrophases are distributed in idea and project formation (Value Identification), design (Value Proposition) and implementation (Value Delivery). For Kindström & Kowalkowski (2009), the macrophases are market sensing (Value Identification), development (Value Proposition), sales and delivery (Value Delivery).

The service development conceptual framework for PwD shown on Figure 3 resulted from the combination of these three macrophases to the Service-System elements of Forcellini

(2013), to the AT-System HAAT elements and using as a background the principles of Universal Design. The central area of Figure 3 refers to the phases and activities framework.

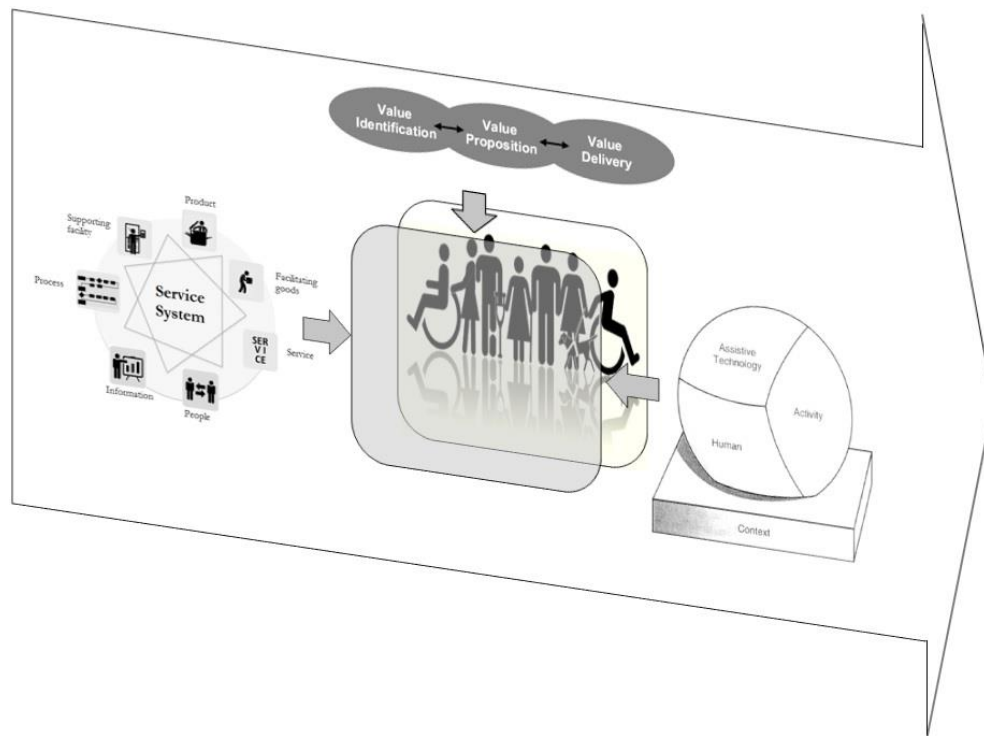
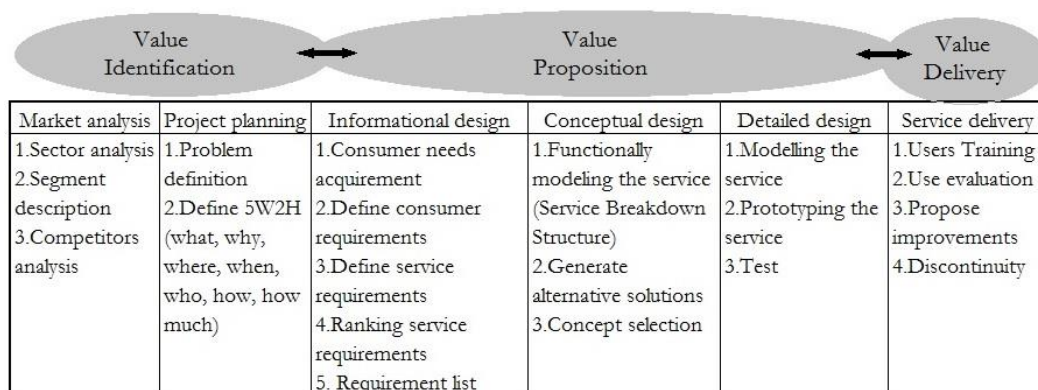


Figure 3 – Conceptual Framework

Based on the theoretical foundation, it was identified in which phases the proposed macrophases could be deployed in order to respectively identify, propose and deliver value. Initially, as services to be developed are projects, there must be a planning phase, before starting the development itself. In the literature, there are models that begin with strategic planning and others that start with project planning, as referred in the phases bellow, and even some models that start directly with the service development (Jiang, 2008; Li et al., 2010; Shimomura et al., 2009). After planning, the service is developed, from the customer's



needs until design and testing. Finally, there is the service delivery, by introducing it into the market. Thus, Figure 4 shows the phases and activities framework and the following topics describe it.

Figure 4 –Phases and activities Framework

Market Analysis

The strategic planning of an organization is presented in the literature as being of great importance to the achievement of its mission and objectives (Hunger & Wheelen, 2002). Among the main models that had strategic planning as a phase (Alam & Perry, 2002; Costa Junior, 2012; Magnago & Echeveste, 2012; Marques et al., 2013; Mello, 2005; Pezzotta et al., 2012; Suarez, 2009; Tatikonda & Zeithaml, 2002; Torres Júnior et al., 2006; Yang, 2007; Zaninelli, 2012), are, among others, activities related to the target consumers definition.

Although the target consumers were previously established as PwD, in the framework it became necessary to insert a phase related to the strategic planning, regarding the organization knowledge about the market in which it operates, trying to understand its customers and its competitors. It will also consider, in addition to PwD, the possibility to also attend the people without disabilities, seeking the desired goal of the universality for the proposed service. This phase was named market analysis and was divided into the sector analysis, segment description and competitor analysis.

Project Planning

One of the biggest mistakes of designers is to keep in mind a solution to solve a problem earlier, which impairs the development of products and services, limiting creativity (Santana et al., 2010). To avoid this, before starting the project planning, it was included in the framework the problem definition activity. Thus, the entire project will be developed and planned to search for a solution to be revealed based on the information raised during the service development. Some authors presented a similar stage to the problem definition before going to the development, naming it idea generation (Alam & Perry, 2002; Mello, 2005; Suarez, 2009; Tatikonda & Zeithaml, 2002; Zaninelli, 2012), generation of service idea and concept (Yang, 2007) and idea management (Karapidis, 2005).

The second activity of the project planning phase refers to the planning itself. Among the main authors that apply the planning phase (Juehling et al., 2010; Karapidis, 2005; Marques et al., 2013; Pezzotta et al., 2012; Magnago & Echeveste, 2012; Suarez, 2009; Torres Júnior et al., 2006; Yang, 2007), Pezzotta et al. (2012) relates this phase with activities necessary for defining resources, deadlines and other information related to the project. Suarez (2009) details a little more what those activities are, like definition of deliverables, assumptions, limitations, restrictions, costs and prices, stakeholders, staff, responsibilities, risk and impact analysis, critical path, schedule and viability analysis.

The proposed framework is not intended to exhaust the extensive and complex content involved in project management, but only to emphasize the importance of using a guide for planning at the beginning of the SDP, highlighting some essential activities and suggesting broadening in cases where there is need for more details. Therefore, the 5W2H plan was defined as an activity for the planning phase, answering the questions: what, why, where, when, who, how and how much it costs.

Informational Design

The Value Proposition macrophase is characterized by activities of service creation, i.e. design. Several authors have presented design phases in their models, without, however, subdividing them (Alam & Perry, 2002; Costa Junior, 2012; Jiang, 2008; Juehling et al., 2010; Karapidis, 2005; Li et al., 2010; Magnago & Echeveste, 2012; Marques et al., 2013; Mello, 2005; Pezzotta et al., 2012; Shimomura et al., 2009; Suarez, 2009; Tatikonda & Zeithaml, 2002; Torres Júnior et al., 2006; Yang, 2007; Zaninelli, 2012). In this paper, the Value

Proposition macrophase was subdivided into Informational Design, Conceptual Design and Detailed Design. Although it has origin in Product Development models, this nomenclature has also been used in SDP models (Costa Junior, 2012; Magnago & Echeveste, 2012; Suarez, 2009); other authors use synonyms as identifying customer experience needs (Jiang, 2008), service requirements development (Li et al., 2010), needs identification (Marques et al., 2013), specifications definition (Mello, 2005), client communication and requirements generation (Pezzotta et al., 2012).

The first creation activity consists of raising and organizing information, necessary to design the service. Therefore, in Informational Design information about all elements of Service-System and AT-System are acquired, as clients involved in the service, AT related to the service, competitors, service usage context, etc. Several authors have emphasized the importance of customer participation in SDP, considering it as a central element in their models (Chun Chu & Jung, 2006) or highlighting the importance of considering their experience (Jiang, 2008).

At the end of Informational Design, information is organized in such a way that it is possible to say that these are a service, represented textually by the service specifications. For the context of this framework, the pursuit of service to the Universal Design principles will be inserted in the service specifications list, even if not explicit by the customers.

Conceptual Design

The word concept was used by all authors who mentioned this phase in their models, and some have even named it as conceptual design (Costa Junior, 2012; Pezzotta et al., 2012; Suarez, 2009; Zaninelli, 2012; Magnago & Echeveste, 2012), while others have used similar words as idea description (Alam & Perry, 2002), concept generation (Yang, 2007) and concept development (Li et al., 2010; Marques et al., 2013; Tatikonda & Zeithaml, 2002).

It is in the Conceptual Design phase, after information gathering and organizing, where the service proposition itself takes place. Compared to product development, the information gathered at the previous phase would become a product concept, in the form of a drawing. Similarly, to the service development, concepts in graphical form for the proposed service are developed at this phase.

Graphic solutions proposed for the information gathered before make Conceptual Design the main phase of Value Proposition macrophase. So, special attention is given to the Universal Design principles, according to requirements introduced in the Informational Design specifications list, searching for solutions that meet the requirements defined, in the most universal way possible.

Detailed Design

Detailed design is cited in the literature by Costa Junior (2012), Magnago & Echeveste (2012) and Suarez (2009), while synonyms were used in the models of Li et al. (2010) (service components development), Marques et al. (2013) (modeling), Tatikonda & Zeithaml (2002) (testing and prototyping) and Zaninelli (2012) (construction).

In this last phase of Value Proposition the Service-System and AT-System elements are more detailed, specifying them for the service itself, as well for the facilitating goods, AT and support facilities. The service begins, therefore, as a textual concept in the Informational Design phase, going to a graphic concept in the Conceptual Design phase, coming to a

graphic concept in more detail in the Detailed Design phase, which can be tested, finishing the Value Proposition macrophase and starting the Value Delivery macrophase.

Service Delivery

After values are identified and proposed, by acquiring and organizing the information, with the proposal and the details of the service concept, in the Value Delivery macrophase occurs the service delivery. The term delivery is used by Karapidis (2005), Mello (2005) and Tatikonda & Zeithaml (2002), while other authors use service launch (Jiang, 2008; Magnago & Echeveste, 2012; Torres Júnior et al., 2006; Suarez, 2009; Zaninelli, 2012), implementation (Costa Junior, 2012; Juehling et al., 2010; Yu et al., 2008; Zeng et al., 2010), release (Pezzotta et al., 2012), transition (Li et al., 2010) or commercialization (Alam & Perry, 2002).

One of the most important activities of this phase, which is crucial considering the AT-System elements, is training for the correct use of the service, in order to avoid abandonment by misuse; equally important is to consider the elements of Service-System, for the training of the front office staff, assuring the correct service delivery. Afterwards it is possible to evaluate the service use and Service-System and AT-System elements by users, making it possible to propose improvements. Service Delivery ends with the continuous monitoring of service planning withdrawal from the market, which may be a starting point for developing a new service to replace the current one.

Conclusions

The present situation consists of a lack of appropriate procedures for services development services for PwD. The currently existing Service-System does not meet the specificities of these people. What exist are attempts to adapt the services developed for people without disabilities, thus offering inadequate services. Traditional SDP models are not oriented for PwD and therefore do not contain specific features; for this purpose, the existing generic models are too vague, have little detail, only at the level of phases, and in some cases, activity level, not performing tasks, guidance, actions and specific tools. In this scenario, the generated services are unsuitable for PwD. Since the output depends on the process, it is concluded that the means to generate the service, that is, the SDP itself also is inappropriate.

In the absence of literature, the presented framework aims to contribute to the start of SDP research in the AT area, collaborating with the understanding of services for modification and improvement of existing theories, which hinder the provision of services for PwD. It was developed at the level of macrophases, phases and activities. However, for specific cases, it is suggested to investigate existing services in their real context of use, aiming to instantiate the framework and refine it to the level of tasks. According to Yin (2010), the case study method is best suited for this situation, taking the framework as an initial theory for the case study, once it explains the main issues to be studied, the key factors, constructs, variables and the presumed relationships between them.

The instantiated and task-leveled framework becomes a reference model for the services development for PwD, with specific procedures, so that the service developed presents a better performance than the prior services offered. This model should aim to be lean, containing procedures, people and essential tools, with approaches in carrying out activities that add value and avoid waste.

With the reference models, it is expected to reach a Service-System for PwD, covering the needs of all stakeholders in this system. Close cooperation among different academic disciplines will be required in the future to enable the provision of seamless integration methods that are appropriate to the practical requirements.

An application example is recommended to evaluate the model, through comparative results between the solution reached with the model and previous situations, with existing services developed without it. As a result of this application, new requirements can be obtained for further model refinement.

Acknowledgement

This research was supported by the Assistance for Students of Higher Education Program of Santa Catarina/ Brazil (UNIEDU), by the Federal Institute of Santa Catarina (IFSC), by the Federal University of Santa Catarina (UFSC), by the German Academic Exchange Service (DAAD) and by the Technical University of Kaiserslautern/ Institute of Work and Technology (ITA).

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Democracy and Design in Swedish Personal Assistance

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Abstract

The present study investigated the role of personal assistance service providers for people with disabilities from the users' point of view. Interviews with 12 users resulted in five value categories: (1) Interact with the user in a service-minded way (2) Have a proper ideology of personal assistance, (3) Mediate between users and personal assistants, (4) Provide good work conditions for personal assistants and (5) Represent the user politically. This study illustrates that classical theoretical models of customer service might be less suitable to explain the role of service providers for Swedish users of personal assistance. In order to provide successful service and support, service providers might need to consider interactions beyond the provider and the end-users, and also include issues such as political lobbying, working conditions for social workers and sustainability in terms of guaranteeing the service in the future. The findings are discussed in relation to service management theories and the service design society.

KEYWORDS: service provider, personal assistance, people with disability, personally designed support

Introduction

Personal assistance is a personally designed support for people with disabilities who need assistance with basic needs such as personal hygiene, meals, dressing and communication. For most users, personal assistance is designed in co-creation between the service provider, personal assistant(s) and the user (SOU 2005:100). The aim of the present study is to explore what users desire of their service providers of personal assistance, and how the assistance could be improved. Qualitative interviews were held with 12 users of personal assistance to find out what their personal needs are and how these might be met by service providers.

Swedish personal assistance – A personally designed support to people with disabilities

The Swedish system of personal assistance is designed to support people with various disabilities. The Swedish system is more generous, in respect to governmental funding of

assistance (per user), than the systems in the United States and the United Kingdom as well as other systems in Scandinavia. If the criterion of basic needs is fulfilled, the person may also receive personal assistance with a wide range of tasks in working life, family life, leisure activities, cleaning and many other areas (Grönvik, 2007; Selander, 2015). The Swedish system also gives the users much more influence and control over the assistance received than any other system (Askheim, 1999, 2005). The user can decide to arrange the assistance by employing assistants her-/himself; requesting assistance through the municipality; forming an association or co-operative with other users; using another company or organization or by both employing assistants her- /himself and receiving assistance through the municipality or another service provider (Swedish Social Insurance Agency, 2007). The present study focuses on users who delegate the employer's liability of personal assistants to a service provider (>96% of the users).

Three kinds of service providers

There are three different kinds of service providers; public (i.e. municipality), user-cooperatives and private firms. For simplicity, we can view the user as a customer who receives a check from the government for which he/she can buy the assistance he/she desires (Norén, 2000). All service providers are formal employers of their assistants. They are responsible for legally regulated working conditions, such as work environment and sick leave. In general they also manage financial administration and recruitment of personal assistants (Norén, 2000). The basic difference between different kinds of service providers is the view of personal assistance. Personal assistance for public service providers is about providing personal assistants who can execute different kind of tasks for the user. Cooperatives and private firms on the other hand, prefer to delegate as many tasks as possible to the users. Salary and education for personal assistants are centralized for public providers while they usually are decentralized to the specific user in the case of a cooperative or a private firm (Norén, 2000). Users who arranged their personal assistance through public providers have less influence and self-determination over the people working as personal assistants and the tasks they assign. Users with user-cooperatives had the most influence to decide on their personal assistants (Calleman, 2008). There are no legal formalities concerning what should be included in the work or a service provider and there are no legal barriers to enter the market. Instead of providing obligations, the parliament encourages service providers to listen to the desires of their specific users and independently tailor-make their *personal* assistance. This implies that the quality standards among different service providers might be slightly different and sometimes contradictory (Hugemark & Mannerfelt, 2003).

Research objective

For users with a service provider (>96% of the users) personal assistance is designed in co-creation between the service provider, personal assistant(s) and the user (SOU 2005:100). However, the roles of the actors in designing the service usually differ across the municipality, user-cooperatives and private firms. The aim of the present study is to explore what users desire of their service providers of personal assistance, regardless of the variation in the frame factors related to specific instructions. To improve services designed for people with disabilities, researchers must first ask people with disabilities what they desire from specific services. Regarding support and services for people with disabilities, decisions are many times taken by politicians without including the people the decisions concern (Gough, 1994; Söder, 1995; Lutz & Bowers, 2005). It is hoped that this study will contribute to a more democratic service design practice, foremost in the field of vulnerable users. It is worth noticing that this study focuses on desires of service providers of personal assistance, not desires of personal assistants themselves.

Method

The research design is qualitative interviews with 12 users. The interviews have been analyzed through content analysis.

Participants

An invitation to participate in an interview was sent to 311 users, who were randomly selected from the total population of 474 users who received personal assistance for basic needs for at least 20 hours a week in the area of Gothenburg in Sweden. A total of 31 users consented to participate and among them 12 interview persons were selected in order to include a variety of users as regards age, gender, service provider and impairment. The final sample consisted of 12 adult users, four male and eight female. They ranged in age from 21 to 65 (mean age 47 years). Three users had public service providers, four users had user-cooperatives as service providers and five users had private firms as service providers. The time during which they had been users of personal assistance ranged from 1 year and 11 months to 11 years and 9 months (mean time was 7 years and 10 months). The number of assistant hours per week ranged from 40 hours to 224 hours (mean 118 hours per week).

Interviews

A qualitative interview was conducted as an everyday conversation in which the user was encouraged to talk freely (Mishler, 1986). The interview started with an overarching question: "In your opinion, what does the concept personal assistance imply?" More focused questions were; "what are important characteristic features of a service provider of personal assistance?", "what is characteristic of a bad service provider?", "what is characteristic of a good service provider?", "do you find your service provider lacking in any way?", "how do you perceive quality concerning a service provider of personal assistance?". This type of questions invites participation and narration. The questions overlapped and were only brought up if the free conversation did not cover them. We also asked the users to give examples of characteristics of bad and good service providers from their own experiences. Further, we asked the users who had changed service providers ($n=9$) if the change was related to a specific incident. Such incidents are sometimes referred to as critical incidents, and can be described as incidents that make significant contributions – in this case negative – to an activity or phenomenon (Bitner, Booms & Standfield Tetreault, 1990). The interview lasted between 45 and 80 minutes. The interviews were audio recorded and transcribed verbatim before the analysis.

Content analysis

Both qualitative and quantitative content analysis was used to analyze the interview texts (Krippendorff, 1980; Berg, 2004 and Schilling, 2006). The text was first divided into meaning units; transcribed verbal expressions whose content corresponded to what the user desires of their service provider. Each meaning unit was then condensed to its basic content by deleting all unnecessary linguistic expressions and transforming its content into a short form (Schilling, 2006). Thereafter, the condensed meaning units were coded and similar codes were grouped together into categories. The development of categories was derived through a bottom-up process; from inductive inference concerning coded, condensed meaning units (Smith, 2003; Berg, 2004). We created 19 sub-categories through the questions; "what attribute desirable of a service provider is this code about?", "what other codes are about this desire?" and "what distinguished codes in this category from codes in other categories?". The last step in our analysis was to order the 19 sub-categories into five categories, based on a bottom-up process (Graneheim & Lundman, 2004). Since the narratives yielded rich and complex information, the categories are illustrated using representative interview quotations (Smith, 2003). In order to offer the reader an idea of how salient the categories are, we have also used a quantitative content analysis in order to count the number of users falling within each of the 19 sub-categories (Smith, 2003; Berg, 2004).

Ethical considerations

Nine users were able to give informed consent to participate in the study themselves. In three cases, the users gave informed consent through legal guardians. Before the user (or legal guardians) consented to participate, all contacts between the researchers and the user were mediated by the Swedish Social Insurance Administration.

Results

The analysis of the results revealed 19 sub-categories of user-values related to service providers. Those 19 attributes were possible to cluster in five categories; (1) interaction with the user in a service-minded way (2) having a proper ideology of personal assistance, (3) mediating between users and personal assistants, (4) providing good working conditions for personal assistants, (5) representing the user politically.

The categories are illustrated in figure 1. Table 1 shows the categories, the sub-categories and their frequencies.

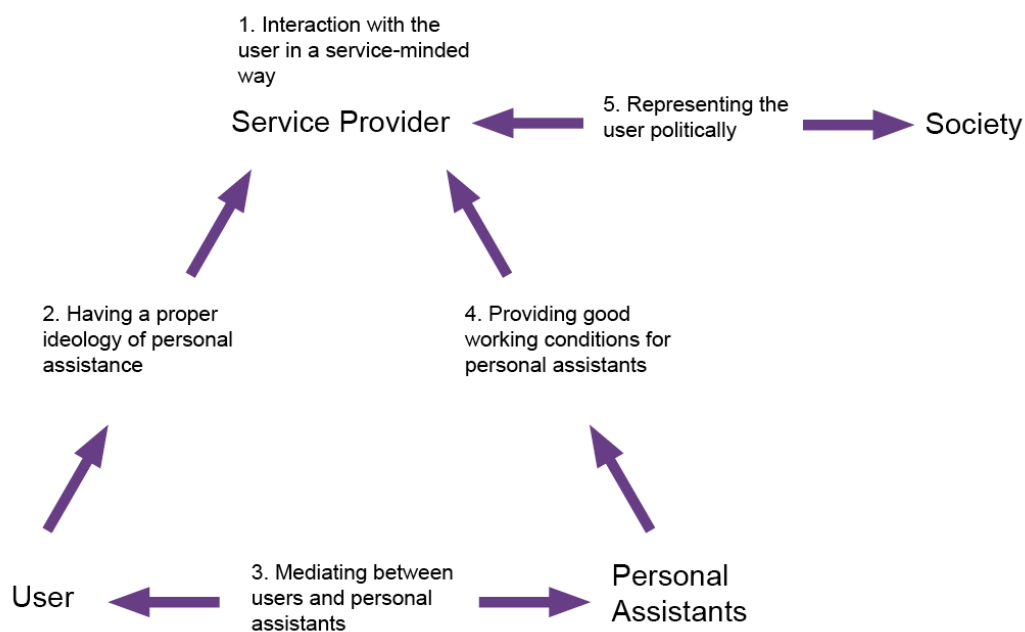


Figure 1. Matrix of actors and five categories of desired attributes of service providers from the perspective of the user.

Table 1
Categories of values that people with disabilities desire from their service providers

1. Interacting with the user in a service-minded way: (n=12 i.e. all users)
 1. Empowering the user: (n=6)
 2. Caring about the user: (n=8)
 3. Supporting the user when the user asks for a favour: (n=6)
 4. Reducing the user's workload related to personal assistants: (n=2)
 5. Providing assistants in all situations: (n=3)
 6. Providing a limited number of assistants to the specific user: (n=1)
 7. Arranging training for users/legal guardians: (n=1)
 8. Arranging social activities for users: (n=3)
 9. Covering extra costs related to personal assistants: (n=2)
2. Having a proper ideology of personal assistance: (n=7)
 10. Following the legal framework of personal assistance: (n=4)
 11. Having the user's well-being as first priority: (n=2)
 12. Personalized support and service: (n=5)
3. Mediating between users and personal assistants: (n=7)
 13. Arranging meetings: (n=3)
 14. Handling conflicts between the user and the assistants: (n=5)
4. Providing good working conditions for personal assistants: (n=8)
 15. Arranging training for personal assistants: (n=4)
 16. Providing good administrative conditions of employment for assistants: (n=3)
 17. Arranging supervision for personal assistants: (n=3)
 18. Providing instrumental rules and instructions for personal assistants: (n=2)
5. Representing the user politically: (n=2)
 19. Being politically engaged on the behalf of the user: (n=2)

Note. The figure after each category and sub-category (n=#) refers to the number of users falling into this category.

Interacting with the user in a service-minded way

Nine attributes describe how the users would like their service providers to interact with them in a service-minded way;

Empowering the user (table 1:1)

The users would like to be given more control over their assistance by the service provider representatives. In order to have a level of self-determination, the user would like the service provider to give clear and timely information about things such as the recruiting process of new assistants. The user would also like to be kept informed as to whether an assistant is unable to work, and also receive an open account of the assistance money, in order to plan activities for her-/himself and her/his assistants. In order to empower the user it is important that the representatives of the service provider regard the user as an equal human being who is responsible and reflective. One user, who only has a physical disability, has noted that representatives of service providers feel they must confront verbal users:

I can feel that my service provider has a disparaging attitude toward the users. A lot of users have a handicap which prevents them from expressing their desires and experiences. My handicap is only physical, which means that the service provider views me as a fusspot who can speak for myself.

A representative of a service provider who does not empower the user views the user as a person who should be controlled and looked after. A woman with an intellectual disability describes a situation when the representative took over too much, as follows:

The representative of the service provider forced me to sign a paper, stating that the assistants can stop me from eating food which is not mixed and ground, because I am not able to chew. But instead of explaining in a normal way, the person just put the paper on the desk and tapped the dotted line twice. "Sign it, you have to sign it", the person said, instead of explaining what it was about.

The users state that the service provider should listen more to the users and recruit more representatives who are receivers of assistance themselves, in order to better understand the user's perspective of empowerment. This would allow for a more democratic and user-friendly design of the assistance system.

Caring about the user (2)

It is important for users to feel that representatives of the service provider cares about them and takes an active interest in their wellbeing. For example, representatives might make efforts to have a dialogue and a personal relationship with the user (e.g. through home visits, telephone calls, etc). Such a person pays attention to the user's specific needs and takes initiatives to satisfy them. One user put it like this:

If it were not for a home visit by a contact person of my service provider, I would not have this wheelchair. The person saw my old model and informed me about a more modern and suitable wheelchair.

A user who felt that the representatives of the service provider did not care enough on a personal level described it in the following way:

In the past, a representative of my service provider always passed by with a present for Christmas, which in itself is very nice. But last Christmas, the service provider sent the present and seasonal greetings through a personal assistant. I would like the contact person to wish me a Merry Christmas her- or himself, at least on the telephone. It is neither about the present nor the seasonal greetings. It is about being treated as a valuable person, that you are somebody. I feel sorry for my service provider, that they do not understand better.

Specially designed training programs for new personal assistants and service provider representatives could help ensure empathetic responses to assistance users and their needs, as well as create company policies for relationship building so that these initiatives do not have to come from individuals, and so that contact with users holds a consistent standard in order to manage expectations.

Supporting the user when the user asks for a favour (3)

Users state that in order for them to receive effective support, the service provider must be available and provide representatives that are both motivated and competent. Being available is a necessary condition to serve the user on demand. A motivated representative of the service provider acts seriously and sympathetically when the user, for one reason or another, asks for a favour. One user had bad experiences with an unmotivated representative:

I desired support to advertise for a new assistant at the homepage of my service provider. The service provider was not motivated to support me, she gave an unclear description of how to advertise instead of practical support. The ideology of my service provider is to delegate as many tasks as possible to the user, but despite this ideology, I think my service provider should have been more helpful, when I, on this single occasion, asked for a favour.

A service provider might offer expertise such as legal assistance and simple medical care to their users. They might also support the user in potential conflicts with the Swedish Social Insurance Agency concerning the number of assistance hours or if a personal assistant suffers an accident while working.

Reducing the user's workload related to personal assistants (4)

The users would like their service providers to reduce the workload related to personal assistants, for example in the recruiting process of new assistants and support during different meetings with assistants. One user describes this reduction of his workload in the first step of the recruiting process of a new assistant in the following way:

The first step is important, if they only send me trash [incompetent potential personal assistants] in the first step, they give me the whole workload in the recruiting process. That is wrong. I am the disabled person. I have less force to recruit assistants than a healthy person. Furthermore, they are not paying me for such a workload. They are not paying me at all. The payment I receive is in the form of good assistance.

Providing assistants in all situations (5)

It is important that the service provider is able to provide assistants that suit all situations (e.g. all times, all places and all activities). Some users need assistance during the night. One user states: "I changed service provider because the organization could not guarantee assistants during the night."

Some users also live in distant places or might want to embark on an activity suddenly (e.g. go to their summer house or take a drive), it is important that the provider can offer appropriate assistants at short notice. In some cases it is also necessary to provide two assistants at the same time.

Providing a limited number of assistants to the specific user (6)

The service provider should provide a limited number of assistants that serve a specific user in order to establish a good relationship between the user and the assistants. One woman explains: "I have 23 different personal assistants, because my service provider distributes them to all users. It is terrible not to know who is working tomorrow morning".

Arranging training for users/ legal guardians (7)

Users desire training for the purpose of improving their relations with their personal assistants. For users with legal guardians, the service providers could arrange training for the guardians so that they can represent the user in a better way.

Arranging social activities for users (8)

The users would like their service providers to arrange social activities for them, such as Christmas buffets, journeys, meetings and parties. Such activities make it possible for users to come together and have fun with other users.

Covering extra costs related to personal assistants (9)

The user would like their service provider to cover the extra costs for personal assistants. Extra costs of personal assistants can be related to consumer goods (e.g. coffee, toilet paper, soup etc.) or to durable goods (e.g. an extra chair for assistants). The service provider should guarantee such goods automatically, as one user said:

When I need something [that is related to the consumption of personal assistants], representatives of the service provider should pass by and give me that, such as kitchen paper, coffee and serviettes.

Having a proper ideology of personal assistance

Users of personal assistance explain that it is important that their service providers have a clear ideology of what personal assistance is and how they should practice personal assistance:

The service provider should not practice assistance by coincidence. They should know what they are doing. They must have an ideology which is deeply rooted in the whole organization.

The ideology of personal assistance goes beyond specific actions. The service provider's ideology of personal assistance must be built on the legal framework of personal assistance and the well-being of the user. However, it is not enough that the service provider has the user's well-being as first priority. The service provider's ideology of well-being of users should also correspond to the specific user's ideology of well-being for her-/himself. In other words, the assistance should be adapted to the needs of the specific user. Designing a system for creating personalized care plans could benefit users. According to the users, a proper ideology of personal assistance should follow these three attributes:

Following the legal framework of personal assistance (10)

The service provider must follow the governmental instructions about what personal assistance is and what tasks are included in the assistant's work. According to some users, their provider lacks knowledge of legal rules related to irregular working hours for assistants, expenses for user's travels and extra assistant costs. Several respondents highlight the importance of distinguishing personal assistance, which is regulated in the "Assistance Benefit Act", from home help service, which is regulated in "The Social Service Act":

The service provider must know the "Assistance Benefit Act"; too often they confuse the "Social Service Act" with the "Assistance Benefit Act". The difference between the two acts is particularly large as regards the standard of living for people with disabilities; the "Social Service Act" refers to a reasonable standard of living while the "Assistance Benefit Act" refers to a good standard of living.

Having the user's well-being as first priority (11)

The service provider representative should be aware of the high stakes for the user and prioritize the well-being of the user instead. One user states:

The most important thing is that a service provider has a clear understanding of what personal assistance is and how important it is for all users. It is a reform, which could be gone tomorrow. You have to treat it with that in mind. You can't just take the assistance money and go to the Bahamas, jeopardizing the entire reform. You just don't do that. What is difficult for people [people without disability] to understand is that a careless act on the part of the service provider representative will only lead to that particular person being fined or sanctioned in some other way, whereas the life of all the users will be ruined. The difference is enormous.

A threat to the well-being of the users is profit-maximization. Users would like their service providers to have a different ideology than general business organizations:

When greed exists, the assistance becomes businesslike. Greed in the form of money and materialism disturbs the order, it is not humanitarian anymore. The service becomes worse and the service provider attracts the wrong kind of assistants.

Personalized support and service (12)

According to the users, it is difficult for one service provider to give high quality assistance to all the different users. Therefore, the service provider should adjust their ideology to serve a particular segment of users, for instance users with brain injuries or only physical disabilities. From an ideological point of view, segmentation is the beginning to personalized support and service, which might facilitate the empowering processes.

Mediating between users and personal assistants

The users would like the service provider to mediate between the user and the assistant throughout. The users want personal meetings as preventive measures to keep up a good relationship between themselves and their assistants, while they would prefer that the service provider handles conflicts if the relationship with the assistant is not satisfactory. Two sub-categories describe how this might work;

Arranging meetings (13)

The service provider should take initiatives to arrange personal meetings in which the assistants and the user (and possibly a legal guardian) participate. Some users would also like their providers to invite other concerned people to the meeting (e.g. physiotherapists and occupational therapists).

Handling conflicts between the user and the assistants (14)

It is important that the service provider act as soon as it knows about a conflict between the user and the assistant. One user described the providers' role in handling a conflict as follows: "I have neither the strength nor the desire to handle a conflict between me and my assistants. It shouldn't be up to me, it is the service provider who should look after their staff".

Some conflicts are related to different opinions between the user and the assistant, for example considering what should be included in the assistant's work. Other conflicts are related to specific occasions in the user's everyday life, for instance if the assistant breaks something and refuses to put it right. To know about a conflict, the service provider must be sensitive to what is going on between the user and the assistants. The users desire an easy way (e.g. a contact person), both for themselves and their assistants, to inform the service provider about a conflict. Wishes concerning how conflicts should be handled vary between different users. Some users would like the provider to speak with the user and the assistants separately first, and then arrange a joint meeting, while some users would like their service provider to arrange a joint meeting from the beginning.

Providing good working conditions for personal assistants

Four sub-categories describing what the users would like the service provider to do for their personal assistants;

Arranging training for personal assistants (15)

Users desire that the service providers should arrange different kinds of courses for their assistants. Such courses can be of a more theoretical character in order to inform the assistants what assistance is about. Desired courses can also be related to more practical tasks such as lifting techniques and cooking.

Providing good administrative conditions of employment for personal assistants (16)

Service providers who offer good employment conditions for their personal assistants, with decent monthly salaries and proper leave entitlement, are deemed better by users. The service provider should also transfer the salaries in a proper way. If the service provider offers good conditions for their assistants, the assistants will stay for a longer period of time and provide better assistance. As one user stated:

The service provider must have good conditions for the assistants. The provider should be afraid of losing them. Everything that contributes to the dissatisfaction of the assistants will also influence me. If the assistants are not pleased, they can quit working here. They must be pleased so they like to come to my home and work.

Arranging supervision for personal assistants (17)

Supervision for personal assistants can be given on a regular or temporary basis. Regular supervision is given through recurrent meetings and works like a “sounding board” for personal assistants. Such support strengthens the relationship between the service provider and the assistant and is arranged in order to improve everyday communication between them. Temporary supervision is usually given as emotional counselling to relieve the pressure on the assistant during a critical period of time. One user describes a situation where she wanted the service provider to give the assistants better support:

During the autumn I have felt very low. I have quarrelled with the medical service, I have quit all social activities, I even thought that I did not want to live anymore. The situation must have been frightful for my assistants. It must have been terrible for the assistants to be in such an environment. During this critical period, the service provider should have given support to my assistants, because I was not strong enough to give them sufficient support.

Supervision can either be given to each assistant independently or simultaneously to all assistants.

Providing instrumental rules and instructions for personal assistants (18)

The user perceives the “Assistant Benefit Act” as unclear considering the job description of personal assistants. Therefore the users would like their service provider to clearly set rules for what the assistants are allowed to do and not to do. One user stated:

I would like the service provider to have more rules for personal assistants. I have heard that they [personal assistants] sometimes carry paving stones in the garden. The service provider must clarify what you can expect from your personal assistants.

Representing the user politically

Some users would like their service provider to not only act in relation to specific users and assistants. They would like their provider to act in relation to the society and represent the user politically.

Being politically engaged on the behalf of the user (19)

The service provider should defend the institution of personal assistance at a political level and prevent economical reductions related to personal assistance. One user describes political achievements as follows:

I would like the service provider to work close to the government and the parliament and try to prevent reductions related to personal assistance. The service provider should fight for the rights of people with disabilities. It is hard for the user and the user's family to fight for the user's right.

The user would also like their service providers to keep them updated about what is happening with personal assistance on the political level.

Discussions

Beyond the basic customer perspective of service providers

The user of Swedish personal assistance is sometimes regarded as a customer in a service market (Norén, 2000; Hugemark & Wahlström, 2002; Hugemark & Mannerfelt, 2003). According to Gummesson (1994, 1998), four basic interactions determine the quality of the service provider from the customer's perspective; (1) the interaction between the service provider's contact personnel and the customer, (2) the interaction between the service provider's systems and the customer, (3) the interaction between the service provider's physical products and the customer and (4) the customer-to-customer interaction. According to us, the main difference between the general service customer and the user of personal assistance is that the user desires attributes beyond the direct interaction between her/himself and her/his service provider. Service design from the perspective of the user in this study is more complex than service design from the classical perspective of Gummesson (1994). The complexity is related to the close relationship and close human interactions between user and provider, and the democratic intention of Swedish personal assistance to provide user freedom and empowerment, rather than to governmental rules and regulations.

According to Laswell (1951), the benefits of positive aid for people with disabilities are "to overcome handicaps that would otherwise prevent the achieving of a full human experience" (Laswell, 1951, p. 477). Even if we do not agree with the concepts "aid" and "handicaps", we nevertheless think that the benefit of personal assistance must be to develop the user toward her/his full human experience. In traditional service production, the customers enter the stage during the production process and are therefore integrated in a value-added process. The interaction is sometimes extremely intense and intimate and includes enormous stakes for the customer. The more intense and long-lasting the relationship between the customer and the service provider is, the more flexible the service provider must be to adapt the service to the customer-specific desires (Grönroos, 2007). In personal assistance, the customer not only enters the stage during the production process, he/she typically also stays in the production process for a life-time in order to achieve her/his full human experience. Therefore, the service provider must offer tailored support to the individual's needs. But in order to provide equality and justice between users and also for not jeopardize the support and service in a long term perspective, the users understand that the service design of personal assistance need to take more aspects into account than the service production through the interaction between themselves and their service providers.

Recommendations and practical implications

In line with previous research (Holliday, Ward, Awang & Harson, 2014) our recommendation is to involve a range of stakeholders, including end-users, personal assistants, service provider representatives and politicians, in co-creation sessions in order to better design support and services to people with disabilities. We hope that different kind of stakeholders can learn from the user-driven insights presented in this paper and thereby help to improve the quality of support and services to people with disabilities. This study highlights some priority areas for service design in the era of Swedish personal assistance; such as clearness in judicial instructions of what service and support is included in personal assistance, transparency of the service provider's internal and external work, efficient routines to follow-up support and services, social interactions beyond instrumental exchange. As stated in the beginning, personal assistance for people with disabilities is more generous in Sweden than elsewhere. However, we believe that deep user insights from the welfare state of Sweden can be useful for designing services for people with disabilities also in societies with less state support and thereby contribute to democratic service design practices also outside Sweden.

Benefits for the service design community

The underlying idea within Swedish personal assistance is to create value for users by tailoring support and service to the specific needs of individual users, so that they may live their lives as other citizens do. As stated in the introduction, a user might receive support for basic needs and for other needs if criteria for such basic needs are fulfilled. However, neither basic needs nor other needs are clearly defined or regulated in any governmental documents or acts. Therefore, there are no clear specifications of what should be included in personal assistance or what the assistance money should be used for. A tailor-made support without a ceiling regarding needs might have some problems, especially as there have been no barriers to entering the assistance market for service providers. As a consequence, the costs of Swedish personal assistance have been far higher than expected. As is clear from this study, a lot of users worry about the future of personal assistance and would like service providers to consider more service interactions in society. Further, they want their service provider to pay a lot of attention to ethics and politics in their *raison de être*, rather than business related goals (e.g. service-mindedness and profit maximization).

When it comes to service and support to people with disabilities, decisions are many times made by politicians without including users. When the service is too free and financed by the government, the Swedish lesson of personal assistance has showed that costs run surprisingly fast. Studies like this one open up new questions about service design, which is quite a new industry that still is trying to define itself and its value. This study unearths challenges that are complex, personal, often tied to individual people's behavior but that also touch on fundamental values in our society. We know that service design is a great way to tackle challenges but this specific case requires a deep and mature methodology with strong ethics. There are several of these types of cases in society that come with large risks and responsibilities, not just to current users and caregivers but to the whole system. As already mentioned, it is hoped that this study will contribute to a more democratic service design practice, foremost in the field of vulnerable users. This goal might be attained in at least three ways.

1. User insights from this study might directly guide service providers in their support to people with disabilities, benefiting users and the industry as a whole.
2. The user insights might guide politicians to clearly decide and explicitly specify what should be included personal assistance support, in order to both guarantee the equality in support across users and to reduce the running costs while still providing quality assistance.
3. The insights can open up a larger discussion within the service design community about understanding the responsibilities and consequences of working with societal services that cater to vulnerable users. This is clearly a sector that could benefit from a service design

perspective, yet also one that will require deep and delicate handling by service design professionals.

We suggest that the discussion of what should be included in the work of not only assistance service providers, but all such governmental services, starts from the users' perspective, as presented here.

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People Centred Healthcare Service Delivery - By People for People

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Abstract

Primary healthcare is the one of the most efficient and cost-effective way to organize health systems. However, delivery of primary healthcare is a challenge for a number of countries as they have low resource setup and high population count. To address this challenge, various health policies & programs, including IT solutions have been devised and deployed. Ways to empower and mobilize Community Health Workers (CHWs) have proven to be beneficial as they address issues specific to the community that leads to effective implementation of care plans. However, as research suggests, numerous programs have failed in the past because of unrealistic expectations, poor planning and an underestimation of the effort and inputs required to make it work. This paper analyses user centric methods of catalysing CHWs in primary care delivery and reflects on a framework that constitutes higher retribution & enablement of the community health worker.

KEYWORDS: community health worker, primary care, healthcare delivery, triaging, health continuum, care network, IT, service delivery

Introduction

Primary healthcare in emerging markets is being constantly deployed and tested for its efficacy and policy makers are working on new strategies to provide healthcare access to people, utilizing effectively limited resources. Community Health Workers (CHW) aid these strategies by extending care services outside the premises of a primary healthcare centre and increase the reach of healthcare. Many examples exist across different countries where CHWs have been trained and used for healthcare delivery, screening and referrals, educating communities on hygiene, mother and child care, family planning, disease management and population data gathering. Yet these programs have either not yielded desired results or has been abruptly concluded due to lack of visible benefits. This paper discusses in details the challenges faced

by primary healthcare in emerging markets and analyses how service innovation in Information and Communication Technology (ICT) can equip and increase the probability of success of a CHW program. The result of which will help to create and propagate 'one network of care'.

Methodology

Donald A. Norman in his book 'The Hidden Computer', has aptly stated that "the computer industry thinks it is still in its rebellious teenage years, exulting in technical complexity. Customers want change." The best way to probe into this matter would be to start the process all over again. This time with a bottoms-up approach, beginning with the users' perspective and then weaving in technology for a complete design fabric. This would help develop creative solutions in integrated product and service solutions directed towards improvement in quality of life; by addressing inherent problems within healthcare, environment, learning and information dissemination, communication and connectivity, and personal security. All these dealt under the joint umbrella of business, technology and design. Service design will be the key enabler as an approach to make this happen.

For our study, an intensive desk research was conducted to familiarize with the domain of healthcare and its existence in emerging markets. Post preliminary desk research, visits were made to various health centres in cities of India (Delhi, Bangalore, Kolkata, and Ghaziabad), Brazil (Sao Paulo) Kenya (Nairobi). During these visits, several interactions with stakeholders helped us to understand their perspective and also observe beyond the dialogue. Different levels of care settings were visited which includes - standalone clinics operated by private practitioners, government run primary care clinics and district level hospitals offering secondary care.

The approach to the research was two-folded. The research in India was a top-down approach to understand key stakeholder needs through confrontation of envisioned scenarios. Here they were also interviewed on their vision for primary care and the current challenges faced. However in Kenya and Brazil, we had a bottom-up approach, where we applied qualitative research techniques of shadowing along with interviews. These helped us gather relevant insights for us to construct a detailed 'current workflow', understand personas and identify their tasks, pain points, needs (latent and tacit) and motivations.

The insights from the studies were then synthesized through a number of contextualization and co-creation sessions, where workflows and experience were mapped on a time line representing the patient flow (patient registration, consultation, reports, follow up etc.). After this map was detailed, pain points and hurdles of each of the phases were mapped onto the flow, along with the needs, opportunities and challenges. These were later checked for consistency, relevance and applicability across the primary care workflow.

These identified needs and opportunities are addressed and ideated upon to generate new service blueprints. Giving way to innovative business models and new models of service delivery. Further, these are broken down into set of detailed Information Technology (IT) solution requirements to create a minimum viable product (MVP) for these care contexts. These are shared with development teams as user stories and scenarios for further development and pilot tests that are currently in progress.

To outline our methodological approach, the following are a few examples and artifacts from each stage that are particular to the research objective:

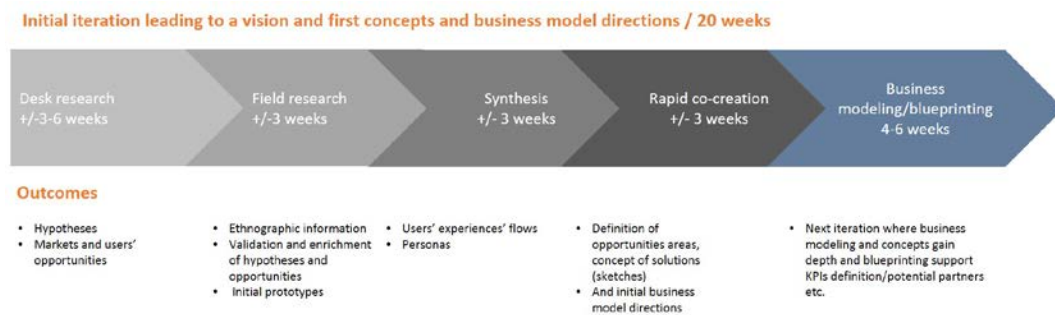


Figure 1: Overview of methodological approach

1. Desk Research

As a first step, we used materials that were available with us to plan how we want to define the scope of our study such that we achieve our goals effectively.

A. Framing the assignment

It was important to frame our project within the perspective of the health care system in place. Usually the business units decide the business potential of a region, therefore we proceed to underpin information to frame our project such as the health care system in place. Questions to be answered were - How active and effective are the public and private health care systems? What are its main ambitions and bottlenecks of either sector? What are the main health problems facing the population? What are the main differences between private and public health care or rural, urban and peri-urban ones? What are new private or public initiatives happening and what is the network of care delivery?

2. Field Research

We then were ready to visit the fields and capture the necessary information as below.

A. Define users, locations main experience pathways and known bottlenecks

Since we were learning about primary care, it was important to define the main users involved in the care experience, such as clinical providers, care givers, community health workers etc. Also include our ultimate customer (who will buy our solution) with the goal to understand the sector or organization's strategy and challenges. Last but not least, include the locations of the experience such as home and primary care unit, lab and/or pharmacy among others.



Figure 2: Sample stakeholder mapping for Primary Care in rural setup

B. Define (suggestive) methods, duration and locations

Seek

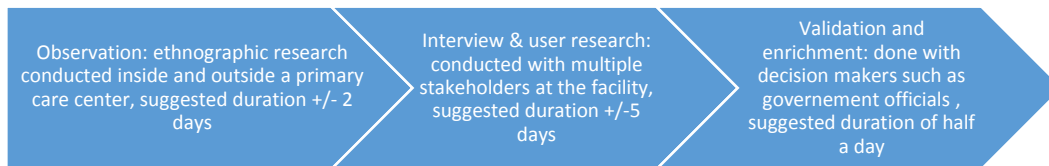


Figure 3: Sample structure of timeline and locations

3. In-field hands on research

After the framework for research was set, we were ready to immerse in the context.

A. Develop ethnographic understanding of the context



Figure 4: Photos of primary care setups in India and Kenya (left to right)

B. Identify, recruit your population and plan the activities

Once we had arrived at the primary care unit, we shared with the facility manager our plan. They usually have good suggestions on how to approach the personnel and who are the best suited people for our conversation.

C. Deploy research activities

Usually activities planned in emerging economies require some flexibility. It is important to be flexible and to have a plan B and C. When things are not happening the way you expected and you are not provided with options, it is best to talk to a manager of the unit or government official to find alternative options. People in emerging markets tend to be highly servicing and adapting



Figure 5: Research activities: co-create session and observational study (left to right)

D. Use probes or any material to get insights

We used shadowing, interviewing, validating concepts and ideas and probed with initial prototypes, examples from other regions. The purpose was to collect richness and good insights in a short time.



Figure 6: Probes used during the study with participants

4. Synthesis of data collected

After research all the data was processed into insights and further synthesized into formats that would support further discussion and present the users in their context.

A. Creating customer journey/experience flow per context: uncover gaps and opportunities



Figure 7: Care journey and subsequent challenges across phases: symptoms to treatment

B. Creating Personas: needs and aspirations of representative stakeholder groups



Figure 8: Sample personas for key regions; touching upon their values, motivations and challenges

5. Co-creation workshop

We used 3 days in a co-create workshop to further synthesize, assimilate data from various regions, along with participants to devise a business model that was meaningful.

Day 1 -**Discover** insights & **frame** opportunity areas.

Day 2 - **Ideate**/Sketch/**build** & Select

Day 3 - Business modelling, blueprinting, next steps

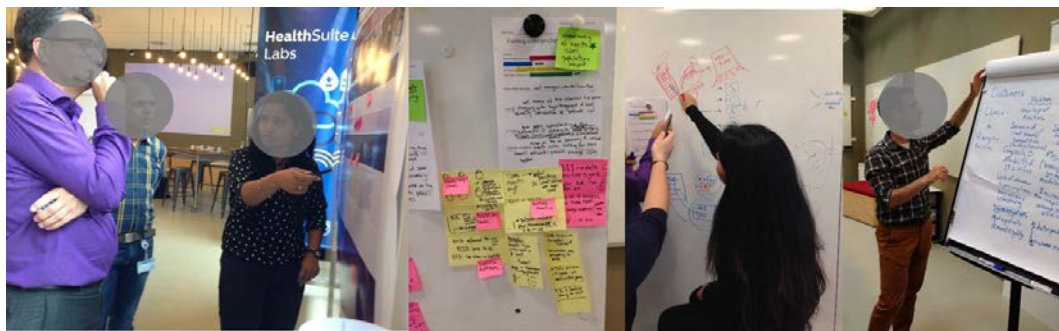


Figure 9: Workshop in progress

6. Post workshop

One of the most important thing is to understand what is presented to the user and what is not (visibility line and backstage). The visibility line are the touch point that are seen by the user(s), and the backstage is what is not presented to the user(s) but are actions required.

Blueprinting allows to analysis the benefits per touch point and to define improvements. For instance, we know that there is a lot of waiting time for patients once they are at the primary care unit prior to be seen by the doctor. If we design a solution that reduces waiting time this is an improvement that can be captured in potential new KPIs, which ultimately help us to build our business case. Therefore, by touch-point we can define improvements (potential KPIs) and partners (backstage) among others.

User scenario							
Description	Easy, early and accurate diagnosis at home Of blood pressure (BP) measurement of "at risk population" conducted by the community agent	Pro-active and early diagnosis done by Philips' coach who identifies high BP cases to bring forward to the weekly meeting.	Identification of cases and planning at the weekly meeting, as a team. The G.P. orders an appointment for the high BP cases, which is done by community agent.	Easy scheduling from home A SMS alert will remind her 36 hours prior to the appointment.	Targeted plan for successful management via the Philips coach and program Maria will get a plan to gradually make changes according to her preferences.	Learning and managing the condition at the kiosk, where she can also get a refill of her prescription and get a new patch + phone support from the coach and her peers.	Effective and continuous management Maria reached her initial milestones, and feels proud of herself.
Components							
Visibility line	Visible to the end-user and comm. Health worker	not visible	Visible to the community UBS users	Visible to the community health worker	Visible to clinical, comm. health w. and end-user	Visible to end-user and coach	Visible to all users
Value proposition	Proactive, easy and efficient diagnosis of hypertension for accurate sizing of cases.			Optimum allocation and deployment of resources via targeted and personalized plans to ensure treatment outcomes			
Potential KPIs	Effectively and efficiently BP measurement of "at risk population" (+50%). Decrease in queues and waiting time (-60%)	Higher accuracy in measurements: from 6% of incidence to 100% representative sampling	Early identification of cases (+50%)	From hypertension spontaneous demand (-50%) to planned and confirmed diagnosis appointments (+70%)	Increase (+50%) effectiveness in consultation.	Increase in effectiveness of treatment (+50%)	Increase in effectiveness of treatment (+50%)
Partners	Municipalities	Municipalities	Municipalities	Municipalities	Municipalities	Municipalities	Municipalities

Figure 10: Service Blue-printing a user scenario

Primary care

A primary health care approach is the most efficient and cost-effective way to organize a health system. International evidence overwhelmingly demonstrates that health systems oriented towards primary health care produce better outcomes, at lower costs, and with higher user satisfaction. - Dr. Margaret Chan, Director-General of the World Health Organisation (WHO).

Primary care is healthcare provided by physicians specifically trained for and skilled in comprehensive first contact and continued care for persons with undiagnosed signs, symptoms, or health concerns not limited by problem origin (biological, behavioural, or social), organ system, or diagnosis. Primary care includes health promotion, disease prevention, health maintenance, counselling, patient education, diagnosis and treatment of acute and chronic illnesses in a variety of health care settings (e.g., office, inpatient, critical care, long-term care, home care, day care, etc. Primary care provides patient advocacy in the health care system to accomplish cost-effective care by coordination of health care services (American Academy of Family Physicians (AAFP), 2015).

In many countries, primary care is facilitated by CHWs who act as the first point of contact. The following diagram outlines the current primary care delivery model:

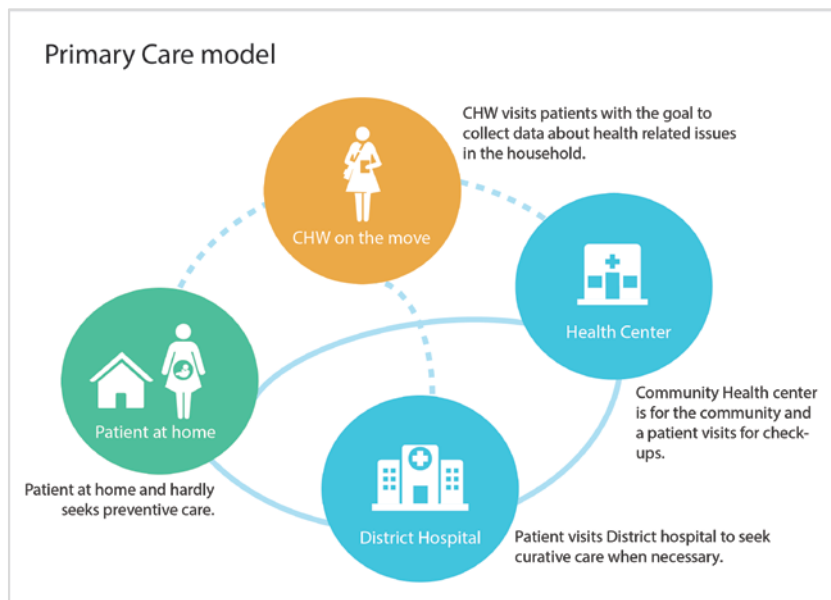


Figure 11: General primary care roles & delivery

WHO's vision for primary care is "better health for all". The organisation has identified five key drivers to make this vision a reality, they are:

- reducing exclusion and social disparities in health (universal coverage reforms);
- organizing health services around people's needs and expectations (service delivery reforms);
- integrating health into all sectors (public policy reforms);
- pursuing collaborative models of policy dialogue (leadership reforms); and
- increasing stakeholder participation.

Clearly, the basis of the goal is people centred. It is focused on healthcare needs of individuals within a community. WHO is supporting countries in implementing people-centred and integrated health services by way of developing policy options, reform strategies, evidence-based guidelines and best practices that can be tailored to various country settings. The United Nations (UN) body also recognizes that integrated health services encompasses the management and delivery of quality and safe health services so that people receive end-to-end a complete continuum of health (World Health Organisation (WHO), 2008).

Current Challenges in Primary Care Delivery

Most emerging markets have similar primary care gaps. In developed countries, the patient's opinion is important i.e. "no decision about me without me". This leads to increased service integration and care closer to patient's home. However, for developing countries, the reality is quite different. Some of these challenges are listed as follows and illustrated in:

- Low GDP expenditure for healthcare
- Healthcare services remain unaffordable for a large section of the population
- Healthcare services are skewed towards urban regions
- Shortage of doctors exists at various levels in the healthcare system
- Insurance coverage is low
- Inaccessibility of healthcare services

- Primary reasons for shifting preferences towards private sector setups include:
- Low health-seeking behaviour in patients. Focus on Curative health care.
- Lack of adequate healthcare infrastructure & workers.
- Fragmented healthcare delivery.

As illustrated in Figure 2, in emerging markets there is a high occurrence of cardio vascular diseases (CVD) and maternity complications. Similarly, Figure 3, highlights some life-threatening realities about access to care and deficiency in early screening of potential health risks.

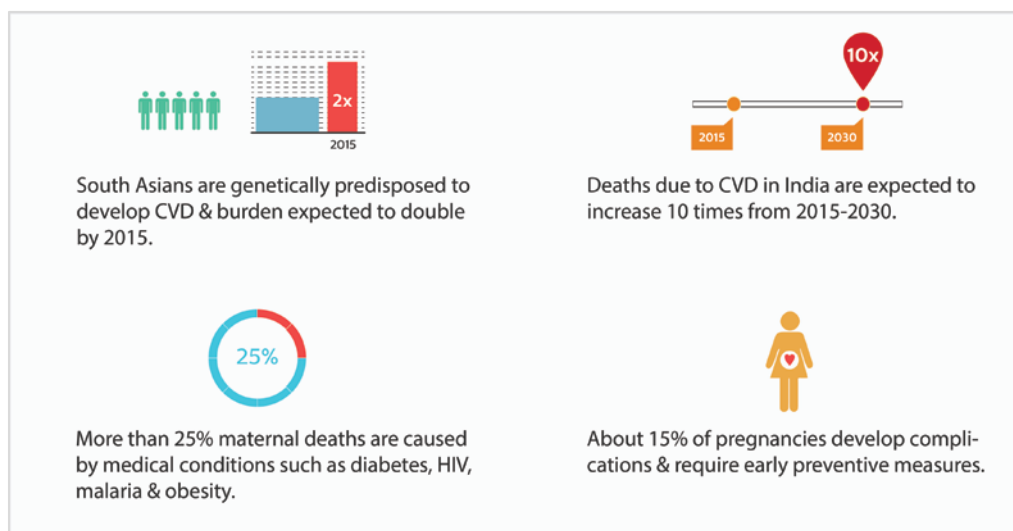


Figure 12: Increasing disease burden in India

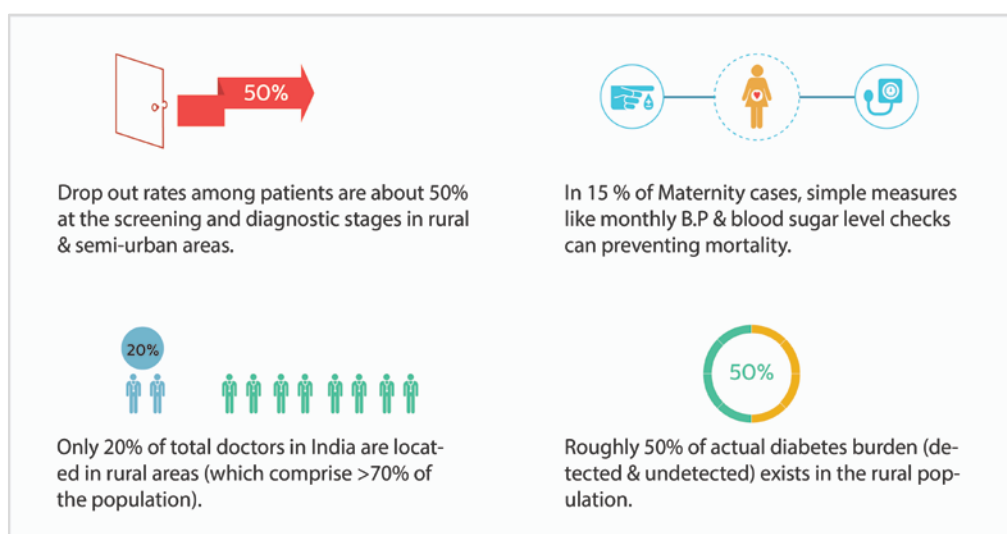


Figure 13: Current health scenario in India

Role of the Community Health Worker

Community Health Workers (CHW), sometimes called Community Health Volunteers (CHV), can be seen as effective extensions of the healthcare systems especially in case of human resource shortages (Strachan, et al., 2015) and inaccessible care in low-income countries and

difficult geographical terrains. CHWs are frontline public health workers who have a close understanding of the community they serve. This trusting relationship enables them to serve as a liaison/link/intermediary between health/social services and the community to facilitate access to services and improve the quality and cultural competence of service delivery.

CHWs function along a continuum ranging from individual and community development to service delivery and promoting community empowerment and social justice. They often help link people to needed health care information and services.

In Kenya and Brazil, CHWs provide additional hands and ears for the physicians and nurses. They are mostly responsible for collecting relevant population data, such as the health and socio-economic status of the community, around the primary care facility and in some cases they refer people to the primary care unit or make an appointment for them.

Successful CHWs know the community well and tend to belong to that particular community. In Brazil, CHWs are paid by the government. In Kenya they can be paid by NGOs or not paid at all. Their personal motivation and dedication towards their community is often reflected in their approach towards fulfilment of their role. As stated by Strachan, et al. (2015) CHWs value feedback and feeling connected to the health system and their community, are motivated by status and community standing, and want to be provided with the necessary tools to perform. (Lehmann, et al, 2007)

The Affordable Care Act (ACA) defines community health worker as “an individual who promotes health or nutrition within the community in which the individual resides.” As per the Act, a CHW promotes health in the following ways:

- By serving as a liaison between communities and healthcare agencies
- By providing guidance and social assistance to community residents
- By enhancing community residents’ ability to communicate effectively with healthcare providers
- By providing culturally and linguistically appropriate health or nutrition education
- By advocating for individual and community health
- By providing referral and follow-up services or otherwise coordinating care
- By proactively identifying and enrolling eligible individuals in federal, state, local, private, or non-profit health and human services programs

Current implemented programs & their efficacy

The CHW role is not new in the United States or around the world (Andrews, Felton, Wewers, & Heath, 2004; Heath, 1967; Swider, 2002). In the U.S., the use of lay health workers in the community to expand access to healthcare for the poor and ethnic minorities began in the early 1960s (Heath, 1967). Today, community health workers can be found in a wide spectrum of settings, such as community organizations, health departments, churches, schools, clinics, and hospitals. Globally, there is evidence of the successful use of CHWs in developed and developing countries for a variety of chronic conditions, including asthma, diabetes, HIV/AIDS, and hypertension (Cherrington et al., 2008b; Patel & Nowalk, 2010; Postma, Karr, & Kieckhefer, 2009; Rich et al., 2012). Similarly, in the U.S., reports indicate that CHWs were successful in uni-modal roles for a variety of chronic conditions, such as asthma, congestive heart failure, and diabetes, as well as mother-child health and sexually transmitted diseases (Andrews et al., 2004).

However, CHW programs can readily fail without proper design and implementation. Without appropriate structure and support, CHWs can face numerous barriers to the successful execution of their duties. For example, in a study conducted in rural KwaZulu-Natal, South Africa, CHWs reported feeling overwhelmed due to the large number of households for which they were responsible, the lack of needed supplies (including pens, bandages, gloves, etc.), and the lack of support from community health facilitators. Moreover, they were dissatisfied with their low stipends and the lack of support from supervisors while they experienced emotional strain, whether as a result of caring for the sick and dying or from helping the poor. The lack of supplies reflects the financial strains on the health system at large and also illustrates the need for health system strengthening. A variety of issues must be considered for quality program implementation.

Based on an analysis of the literature concerning CHW program evaluations, Hermann et al. (2009) delineated conditions that a CHW program must fulfil in order to be successful in terms of its quality, sustainability, and scalability. The authors note that a program must meet all conditions or risk failure. The first five considerations are basic necessities, and the final three pertain to the program's scalability. The following list is adapted from Hermann et al. (2009).

1. Selection and motivation: CHWs must be members of the community with which they work and must be motivated to help their community.
2. Initial training: Training should include practical knowledge on local diseases and on communication and counselling skills.
3. Simple guidelines and standardized protocols: In order to ensure a baseline of quality in all care provided by CHWs, standardized protocols and tools should be used.
4. Supervision, support, and relationship with the formal health services: In order to ensure quality practices, CHWs need to have adequate supervision and supplies from non-governmental organizations (NGOs) or public health organizations and need to participate in refresher training sessions.
5. Motivation: The lack of recognition by other health care professionals can have a detrimental effect on the morale of CHWs and their level of work satisfaction, which can lead to higher turnover or a breakdown in collaboration between CHWs and the formal health care sector.
6. Alignment with broader health system strengthening: CHWs cannot serve as Band-Aid solutions to weak health systems, but instead should supplement health systems which are able to provide adequate clinical care, supply of materials, training, evaluation, etc.

Clearly, just deploying CHW and programs specific to them are not enough. However, assessing the effectiveness of health programs on the health of populations in general is a challenging methodological task, since it is not necessarily the case that any improvements in the health of a population can be attributed to one or more health program activities. Many factors contribute to the health of populations, including non-health program factors such as the standard of living, level of education etc. It is imperative to bridge the gap between a robust primary care vision and the everyday reality such that it provides:

- Increased access to care and improved quality of patient's experience and satisfaction
- Effective utilization of healthcare experts
- More proactive education, management and prevention of health of individuals, families and the community
- Higher integration across secondary and tertiary care
- More efficient ways with the support of a social support system

Key challenges & opportunity areas

Before we analyse how a CHW's role extrapolates into our context of study within the developing countries offering primary care and how we identify the principles of people-centred healthcare delivery, it is important to note that in our study the prominent findings gave us insights into the key challenges & possible opportunity areas. The needs and opportunities identified are presented in table below (Table 1).

	Needs/Bottlenecks	Opportunities/Directions
1	Data collection bottlenecks across stages of screening & treatment (Registration/triage/consultation. etc.)	New distribution model of data collection pre-consultations, during visit and post consultation
2	Limited time with the patient and too much data collection that it is hardly used by clinical users	Simplified, limited and effective data collection in the consultation that follows the practice logic and time constraints
3	Inaccurate triage that creates queuing issues and long waits	Pre assessment and triage prior to arrival to the unit to ensure more timely and effective visit
4	Lack of presence and guidance after the consultation resulting in low compliance and poor referral completion	Extended care and communication after consultation to ensure successful referral and higher compliance
5	Lack of understanding about the health issues of the community	Ongoing, pro-active and thorough data collection via community health workers and patients with apps and devices

Table 1: Needs and Directions of primary care in emerging economies

We analysed how these needs and opportunities translate into the role of CHWs and how they can be performed by the CHWs who are closer to a community. Figure 4 summarizes the challenges of identifying, treating and offering post treatment care, as currently faced by the CHWs and lists the desired outcome for each of those challenges.

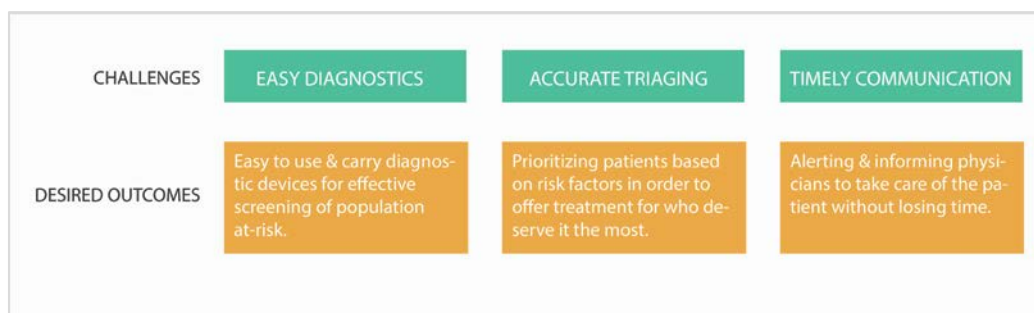


Figure 14: Challenges and desired outcomes

Community health workers are most effective when supported by a clinically skilled health workforce, and placed within the context of an appropriately financed primary health care system. Medical device companies are already partnering with private and public practices, but the real opportunity is to deploy low-cost readily usable mobile systems. IT companies are building elaborate solutions for clinical practice management for clinics and hospitals. However these solutions might be too complex for CHWs due to their limited experience with IT and low literacy. Due to these reasons, services and solutions providers need to rethink their offerings. The offered solutions need to match the knowledge and skill level of the CHWs. Additionally, the solutions should address the various scenarios in which the CHWs operate.

With this new perspective in mind, service design thinking can be coupled with a user centred design approach. Wherein each stakeholder within the primary care system is individually identified and analysed for their role, needs and motivations. For example, a CHW is seen as a user of a service that allows him/her to be the link between the clinical staff and the patient. Similarly, the patient is a user of a service where he/she gets access to care at any given moment, and the clinical staff is a user of a service that allows them to better manage patients not only at their location but also remotely. It is now that a system is designed keeping in mind the overlapping needs and influences of each of the users' requirements along with their personal abilities or thresholds. In this particular case, literacy and access to IT are the limitations of a CHW that must be considered.

Healthcare service delivery framework

Based on the aforesaid considerations, it becomes essential that the community health worker leverages on the community knowledge and interactions, uses technology support to make operations easier and more relevant and contributes to the bigger goal of hospitals and the healthcare provider network. It is about empowering the CHWs with their own resources and additional clinical and IT support to make their contributions visible, actionable and trackable. It also helps to ensure that patients understand and follow their care plan to increase compliance and satisfaction across the healthcare continuum. The following model (Figure 5) outlines the enablers of care for the CHWs.

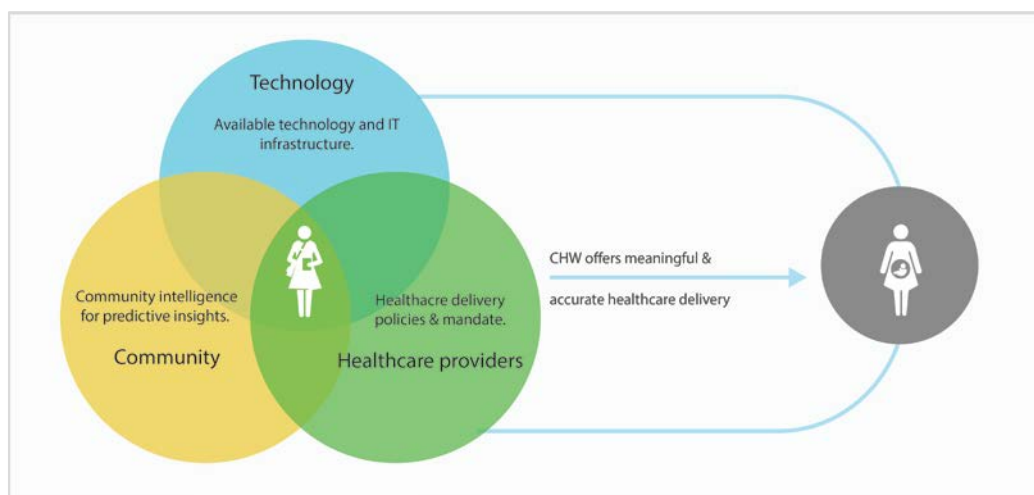


Figure 15: Way to enable a CHWs

In the current model, healthcare delivery unifies healthcare providers, patients, services and the community health worker. The care circles exist in a community where the community workers perform their duties and the hospital/clinics offer specific care. However, there isn't

a uniform flow of information or a unified approach between the different stakeholders. Care types are broken and medical history is not leveraged, for instance every time a patient is treated as a new patient due to absence of medical history. Even when patient data is captured, the information is most likely outdated or incomplete.

To overcome the previously discussed shortcomings, the following suggestions to improve the delivery framework are proposed. From independent co-existing spheres of care where community, primary care, and secondary and tertiary care are separate entities and operate in silos, to one circle of care that is well networked across different levels of care, is facilitated by all stakeholders alike and enabled by IT. Figure 6 illustrates this vision of the proposed care delivery.

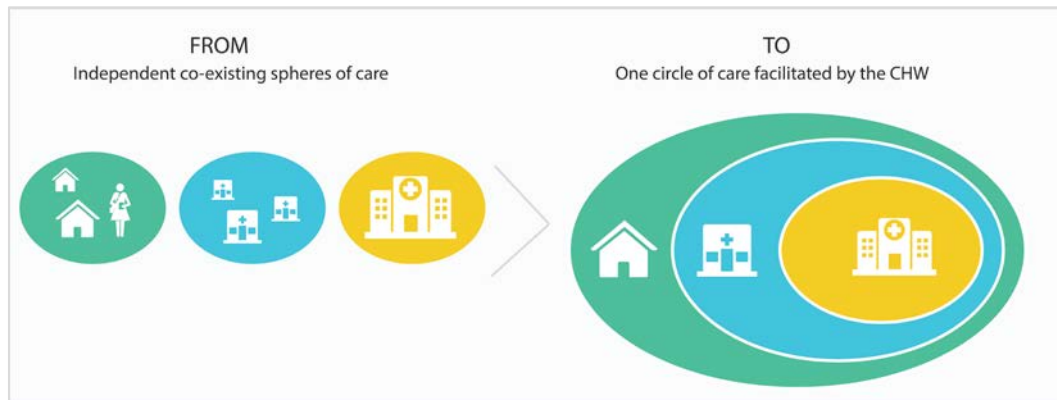


Figure 16: Proposed health care delivery

Possible directions supporting the delivery framework

Clearly, propositions for primary care delivery for low resource settings, had unique quantifiers that can be almost used as a pattern. The following guidelines outline them:

0.1. Building upon existing infrastructure, resources & technology

Rather than introducing new technology and infrastructure, it is imperative to take into account any limitations such as resource scarcity and building propositions around it.

Description

- Leveraging upon the existing technology and infrastructure of the place. Like SMS and IVRS based services are common in many regions with limited smart phone penetration and literacy and can be seen as a useful channel
- Exploring partners for implementation and management purposes (clinical, operational, economic and infrastructural); communication, data storage, infrastructural enablers, electricity, hardware, money transactions, care, staff etc.

Benefits

- Reducing costs, 'not reinventing the wheel', faster time to implementation, no or less training will be needed
- Faster and possibly cheaper adoption.



Figure 17: Building upon existing infrastructure, resources & technology - Patient Requesting Consultation/CHW Visit through SMS and IVRS

02. Providing care even before a patient visits a facility

Not only progressing from curative to preventative helps, but also to enable care spots outside the facility.

Description

- Reconsider the workflow along with its bottlenecks to redesign the healthcare journey that starts and ends at the patient's home. Such that it not only improves the quality but also the service experience for all actors involved.

Benefits

- Distribution of data collection across the care continuum and enable more proactive outreach to patients in the community
- Reduce clinical service burden
- Better care experience
- Managing throughput

03. Triage patients using low cost, trustworthy and mobile devices

Triaging patients is the most important step to primary care and a lot can be gained if devices are deployed safely and are connected to hospital infrastructure in a secured environment.

Description

- Using digital devices and equipment that can accurately measure and store relevant data outside of a primary care center and before a patient visit
- Bridge the digital and physical divide early in the process to avoid error and data bottlenecks

Benefits

- In addition to efficiency in measurement of temperature and blood pressure the digital devices can offer more value and improve the workflow if they can have added features such as information transfer and communication with an electronic medical record (EMR)



04. Make payments easy and trackable

Leverage on the current payment infrastructure of a country and be flexible around it.

Description

- Use mobile payment technologies for micro-payments of clinical services facilitated by CHWs

Benefits

- Reduce handling of cash at the facility and threat of theft
- Effective book-keeping of finances
- Ease for patient



Figure 19: Make payments easy and trackable - Patient Fees through existing telecom services like mobile payment (mPesa in Kenya)

05. Follow-up of care outside the clinic

Follow up

Description

- Allow the clinic to extend its reach outside of the premises, using the existing network of CHWs

Benefits

- Closer and personalized follow-up of chronic patients with reduced burden on clinic's services
- Increase compliance, therefore better outcome
- Prevention of avoidable intervention hence reduce cost or resources utilized



Figure 20: Follow-up of care outside the clinic - Follow-up by CHWs at home, where the care thread continues

Conclusions

Our study so far has been about identifying a methodological approach to opportunity areas using concept sketches, storyboards and prototypes. The most important next step is to see if there is a buy-in from policy makers, technology providers and healthcare product manufacturers. While we lay out a human-centred approach, the implementation plan and roadmap needs to support our claim. Furthermore, assumptions and benefits to user and health system need to be carefully tested and validated. The community worker's tasks are envisioned to be extended outside the currently defined responsibilities, which requires alignment with responsible government bodies.

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Service Design in Public Sector: Boosting innovation through design

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Abstract

The modernisation of public administrations is one of the priorities of the European policy in order to encompass the crisis and create growth and jobs (European eGovernment Action Plan, 2011-2015).

Design is now commonly seen to have important contributions to make in helping public organisations face these challenges. As it is testified by the number of public ‘Labs’ that have been set up across the worlds to bring an experimental approach to build knowledge and create system-change to address the challenges facing governments and citizens.

In the article the authors examine a project of co-design of public services led by the Municipality of Milano and the Politecnico di Milano in the perspective of reconnecting the introduction of design knowledge to the change of the public body involved. The purpose of this article is exploring the trend in the adoption of design culture as practice to deal with public services innovation.

KEYWORDS: service design, co-design, organisational change

Introduction

Cities are under almost unprecedented pressure to deliver better services while reigning in cost. Meanwhile from Europe to US, austerity measures have been put in place, “wicked” societal challenges abound, spanning from youth unemployment, healthcare issues for elderly population, energy consumptions; mobility and transportation just to mention some of them. All these require smarter solutions and are creating pressure for the public and private sector to deliver innovative services (Bason, 2010).

The purpose of this article is to explore the current trend in the adoption of design culture and knowledge as practice to deal with public services innovation. Until today, there is one notable study (Junginger, 2006) presenting three cases of public bodies that introduced design knowledge and claiming that the adoption of human-centred design can change organisations.

Even though there are some cases of public organisation that are introducing design in their practices (e.g. the introduction of ‘experience-based design’ in the UK National Health Service) and experimentations in this field are flourishing, their focus is still on the change of the services, while very little reflection is being produced on the change of the organisations that are supposed to manage them. There seems to be a widespread idea that the introduction of user-centred practices will work per se, without any need of facing the problem of change in the hosting organisations (Deserti and Rizzo, 2015).

In this article we formulate the hypothesis that the introduction of design knowledge in public institutions should be reconnected to the management of organisational changes to a greater extent than previously thought necessary. In particular authors examine a case of co-design of public services in the perspective of reconnecting the introduction of new design knowledge to the change of the organisations, namely: the design of new services for neighbourhood based communities which has been conducted in Milano in the framework of the My Neighbourhood European Project (Concilio et alii, 2014).

MyNeighbourhood (MYN) is a EU-funded research project started in January 2013 with the goal of applying service design methods and tools in 4 different European neighbourhoods (in Lisbon, Milano, Aalborg and Birmingham) to identify and support the establishment and the upscale of grassroots and community-based initiatives, through the adoption of a web-based service platform. The project is operating in a typical ICT research area, introducing the idea that advanced participatory design methods can make the difference in the level of innovation of the proposed solutions, since the development process starts from people and not from the available technological paradigm.

MYN moves from Peripheria European Project (2010, 2013; Grant Agreement No.: 271015). The treat of originality of the Peripheira project with respect to other Smart City projects that the European Commission was founding in 2010 was the involvement of specific competences on urban planning and design for the conception of new people centred services that would also represent the smartness as the capability of the cities to develop solutions in line with the citizens needs and desire.

This project offered a not expected common ground for research by further developing the idea of collaborative services (Baek, Manzini, Rizzo, 2010) as those, in a urban contexts, that are the results of co-design and coproduction initiatives.

From the Peripheria project, a new vision thus raised: recognizing cities smartness in the capability of cities to include citizen driven developments and productions as concurrent city infrastructures together with physical, technical and technological layers. At the core of this vision there is the human perspective, as elaborated by design culture (Julier, 2013), that considers that participatory design approaches to services can bring contextual and cultural dimensions in the delivered solutions.

In the analysis of MYN case study the authors discuss evidences in favour of a new interpretative framework in which the co-design of new artefacts (service, processes and solutions) can be described as a powerful yet implicit agent of change for public organisation

towards a open and participative culture of innovation (Deserti and Rizzo, 2014, Brown, 2009) based on piloting and participatory learning.

The case study: My Neighbourhood project

My Neighbourhood (MYN) project can be seen as the continuation of the vision elaborated by Peripheria and as the scaling up of the Peripheria approach in a different city neighbourhood. The aim of MYN was to combine social platform potentialities with the promises of collaborative services as the solutions that would better fit the social challenge of the neighbourhood. The Milano pilot of the project was set up in Quarto Oggiaro, a City borough with specific problems of its own, due to foreign and especially non-European immigration, lack of green areas and places for youth aggregation, a high share of the population being composed of elderly and lonesome people, and little (if any) economic activity with some employment potential.

The municipality of Milano is intensively committed with the neighbourhood and before MYN many attempts have been conducted to achieve the overall objective of inclusion of the neighbourhood with the rest of the city. MYN represented a new opportunity to further invest on Quarto Oggiaro by supporting the revitalising programme the municipality was perusing for the neighbourhood.

MYN platform has been interpreted as a large scale service for Quarto Oggiaro to systematise all of the previous and current initiatives by the means of a digital channel that would help to fulfil 2 unmet areas of needs:

- giving visibility to the neighbourhood initiatives and active groups of citizens;
- providing a new infrastructure for supporting the flourishing of new services that would answer to the neighbourhood challenges.

On the basis of this idea the MYN platform in Milano deployed to support 2 specific areas of needs:

- to make available, in Italian language, all of its generic features to support social interaction at the level of the neighbourhood to make citizens interact each other;
- to complement the generic features with functionalities to support the delivery and access to “off-line” services developed in Quarto Oggiaro.

The idea of the platform as it has been interpreted in Quarto Oggiaro is based on the complementarity between social network services for people that live in the same neighbourhood and specific services developed within the contexts of the MYN project as solutions to local problems that exploit the platform to be disseminated, accessed and eventually scaled.

To achieve this objective the Municipality of Milano, in the role of the proponent and the leader of the platform started a series of actions based on a communication and implementation plan aiming to co-design with the citizens and the stakeholders the deployment of the platform in the neighbourhood. In fact the story of the citizens and stakeholders engagement in the pilot can be read as the strategy developed to prototype/customise and make sustainable the platform in the neighbourhood.

The first round of activities corresponded to the first year of the project. In this phase the aim of the Milano Municipality has been the introduction of the idea of the platform within the context of the neighbourhood to envision together with all the stakeholders the platform role. In this phase all no-profit associations and the neighbourhood authorities have been involved in large meetings during which the platform aims have been explained and the stakeholders have been invited to express their interest with respect to it. After a consistent number of meetings 3 main tables of stakeholders have been established each of which devoted to develop a first set of generic needs into effective solution to be implemented on the platform or with its support (platform as the digital neighbourhood infrastructure).

From the beginning the tables polarised on the need to develop the platform as the digital neighbourhood infrastructure. At the same time two specific issues of the neighbourhood emerged: the youth unemployment and the elderly loneliness that pushed the tables to explore the extent to which the platform would support their active solutions.

This pushed tables to develop into three stakeholders' networks with specific interests with respect to the platform potentialities.

The first stakeholder's network was led by "I portici" association and focused on the platform potentiality to become the communication channel for the neighbours. The second network led by the Quarto Oggiaro elderly association focused on elderly inclusion and active social life. The third network, led by the Quarto Oggiaro the ecology association involved in promoting urban gardening, focused on how to take care of the neighbourhood green areas to make Quarto Oggiaro a better place where to live.

After some month of discussion and co-design activities the tables produces three main ideas to be further developed:

- the customisation of the MyN platform as the Quarto Oggiaro Social network;
- a service that would support elderly to meet each other and spend together time in conviviality (Quarto Food, convivial lunches for elderly)
- the diffusion of urban gardening practice in the Quarto Oggiaro area (quarto gardening, a gardening service for green area of the neighbourhood).

The Milano Municipality decided to scale the first 3 nucleus of stakeholders and their projects by looking at actors that would help to co-produce the three ideas.

Therefore, the Municipality decided to focus on the activation of communication and collaboration channels among students and young people (including foreign immigrants) to generate social innovation experiments and particularly co-design new service concepts of possible interest for the City as a whole, including:

1. the development of an editorial staff that would support contents creation in the platform; organise dissemination events of the platform; work with MYN technical staff to further develop services and solutions to scale the platform in Quarto Oggiaro;
2. the integration of the tables with specific competencies on the two service ideas developed during the co-design period (Quarto Food and Quarto Gardening).

In fact at this stage of the pilot instantiation the problem for the Municipality and the Politecnico research team was how to satisfy the needs expressed by the citizens during the tables meetings by implementing the platform together with the 2 new services.

The occasion was the involvement of the Agricultural School and a Hotel Management School, both holding their premises in Quarto Oggiaro and the fact that a young guy became the president of the “I portici” association.

The Engagement of students in activities of social relevance to be recognized at a later stage as a practical contribution to their education curricula has been the key element for prototyping the 2 services Quarto Food and Quarto Gardening. As well as the change in the management of the “I portici” has been the key factor for the perception of the importance of a customised digital platform to communicate, disseminate and exchange within the neighbourhood.

The involvement of these actors transformed the stakeholders’ networks in three new Private Public People Partnerships with the role of prototyping 3 services:

1. the platform customisation with respect to the communication and dissemination needs of the neighbourhood;
2. the Quarto Food as a restaurant based service that would support elderly inclusion through social events and, at the same time would act as a process of capacity building for students to become entrepreneur;
3. the Quarto Gardening as a garden based service that would support capacity building for citizens in gardening and urban gardening and at the same time would act as a process of capacity building for students by conducting work experience outside the school.

At the end of the 2013 the services prototypes were developed in the pilot and for each of them the production partnership was established.

The implementation of the platform and of the two services started in parallel at the beginning of 2014. The concomitance of the two processes of development offered the possibility of a continuous amplification from the platform to the services and vice versa. This amplification process supported the second phase of pilot scaling from prototypes to small-scale experiments during which the services existed in stable ways.

More than 100 people have been active during the small experiments, 50 from the two participant Schools (both students and teachers) and 50 guests at the lunches. Agreements between schools, sponsors, and Municipality were achieved, leading to obtain the permissions to work on certain areas and to have the materials to work (Work Kit, work clothes, plants and an amount of money to buy needed tools and plants).

The platform was in use at the beginning to communicate and amplify the experiments. Community building and engagement has been achieved through numerous open workshops and closed door meetings held in the schools and local associations of Quarto Oggiaro. During these induction workshops, after a presentation of the MYN Platform and the web app, hands-on experiments for the services were used as a means to increase effectiveness of communication. As a result, a good level of knowledge and understanding of the project by the key communities of stakeholders and the whole neighbourhood were reached.

On the other hand, the preparation of flyers, posters and other printed material for distribution in public events was realised to invite to the experiments.

In terms of engagement, many formal partnerships with local communities have been established since 2013 and are now active (nearly with 20 entities, or a total of approx. 100 stakeholders). The students of Istituto Lagrange and Istituto Pareto have been involved and trained during numerous meetings (6 classes, with a total of approx. 150 students). About 50 elderly and foreign people have attended the two “small experiments” of service validation, mentioned previously, which have been quite successful.

Currently platform is exploited by Quarto Food and Quarto Gardening services to manage the booking and as a mean of communication. Future steps include the flourishing of new collaborative services in Quarto Oggiaro that will exploit platform.

At the same time the MYN platform community is becoming larger and it is currently animated by an editorial staff composed by members of the “I portici” association.

As soon as the platform and the services were ready to be used the Municipality of Milano together with the help of the Politecnico di Milano started a process of dissemination of the platform outside the Quarto Oggiaro towards other areas of Milano and other cities: currently 6 MYN have been established on the platform.

Evidences from the case

MYN as a design led project has focused more and more on building alliances among one leading partner (the Milano Municipality) and the stakeholders, the citizens, the representative of public sector in the neighbourhood (the school, the municipality), the representative of the private sector (small shops, bars and restaurant) with the aim to impact on the processes of decision-making and transformation for Quarto Oggiaro.

From this point of view the case point out two remarkable elements of discussion: (i) the vision behind the processes of alignment that the MYN implemented; (ii) the specific characteristics of the configuration of stakeholders' networks.

In the meaning of Manzini and Rizzo (2011) that conceive infrastructures also the process of designing a design project to set the precondition within which to experiment with policy and people needs; MYN represents a designed infrastructure to support the interplay between bottom-up experiments and top down policymaking and regulation frameworks.

About the nature of the process of building networks, we agree with the argument discussed by Pell Ehn and his colleagues in many papers (Binder et alii, 2011; Björgvinsson, 2012) that consider the process through which design help to build linkages and support small scale initiatives to become connected as a process of network configurations as infrastructures.

In this sense infrastructures basically means that MYN cultivated long-term working relationships with diverse actors and slowly built a stable designing network that changed the configuration with respect to the specificity of the faced challenges; the interests and needs of the different stakeholders; the constraints as well as the affordances that the socio-economic and regulation framework impose and offer. Thanks to a long-term perspective the project built trust among diverse stakeholders, supported mutual learning and slowly gained authority attention and worked on a more systemic level.

Considered as all MYN can be read as “framework programme” (Manzini and Rizzo, 2011) for cities, a large supporting infrastructure that could move local cases, experiments, projects out of isolation and increase their capacity to impact on the development of a new vision for a city.

In framework projects when contradictions emerge between bottom-up and top-down processes of alignment are designed and implemented with the aim to produce a possible change in the bigger picture by trying to modify regulations, work procedures and cultures, public policy, and indicators of project success (Deserti and Rizzo, 2015).

Framework design projects recognise that there is a need for a more permissive innovation culture in public sector and policy making, so that stakeholders would be allowed to experiment and even to fail and to support these processes they use the concept of prototyping quite extensively.

But at the same time framework projects also recognise the value of discussing how regulations could be stretch, and how things can be done without breaking any regulations or laws. To make this possible framework projects develop larger vision and scenarios within which to discuss policy and through which inform policy decision-making.

Framework projects reveal a model and a structure here presented as a re-elaboration of a first model discussed in Manzini and Rizzo (2011). The new version of the framework project model re-organise design activities in two larger phases: one of designing/envisioning and one of piloting/mainstreaming.

What emerges here as original with respect to the first version of the model is the idea of complex participatory design processes as the experimentation of networks of co-production along the three piloting sub-phases of: infrastructuring, experimenting, strengthening. In the following all the phases of the model:

1. Design/Envisioning:

- ANALYSING. The exploration and mapping of existing solutions and initiatives oriented toward the inspiration of new solutions or systems of solutions. It includes the identification of a consistent design opportunity for a competitive and innovative solution.
- ENVISIONING. The development of scenarios, visions and proposals, used both to define the overall directions to take and to stimulate and align the actors and stakeholders in the development process.
- DESIGNING. The development of the solution through the adoption of participatory design tools supporting interaction and convergence among the involved parties.
- COMMUNICATING. The development of presentations, visualisations, and communication tools and actions to inform about the solution before, during and after its development, with different aims such as convincing potential actors to join or sponsor the initiative, create consensus, foster the adoption of the solution etc.

2. Piloting/mainstreaming:

- INFRASTRUCTURING. The development of digital platforms, toolkits and other supporting tools and actions (such as knowledge-transfer initiatives), to enable the new network of actors in carrying on the development process by themselves.
- EXPERIMENTING. The solution experimentation in a local and small scales; including the assessment and the testing of the network of the involved actors, to give feedbacks for the assessment of the new idea.

- **STRENGTHENING.** The activities oriented towards organising synergies and multiplication effects among different single projects and different elements of the same project.

The model suggests as the design phases (analysing, envisioning, designing, communicating) are usually followed by a long-term period of experimentations (piloting/mainstreaming) that aims to infrastructure the context of the project through the institutionalisation of partnerships that co-produce solutions inducing innovation in the organisational culture that leads the framework project.

Conclusion

Current cities' challenges and problems represent new opportunities for design. Some of the most urgent and costly challenge facing welfare systems are those that require an understanding of the personal, contextual and invariably multidimensional aspects of people's real lives. Others require types of services that are able to engage and collaborate more productively with people, others build on individual and social assets to create fruitful change.

Design is now commonly seen to have important contributions to make in helping public organisations face these challenges. As it is testified by the number of public 'Labs' that have been set up across the worlds to bring an experimental approach to building knowledge and creating system-change to address the challenges facing governments and citizens. This is pushing design into the upper echelons of governments even inside the systems, institutions and rhetorics of public organisation across the world.

Different projects and programs are trying to explore how design potentially could have an impact on larger systems and, especially, how design could reach into the public sector and into municipal offices (Bason 2010; Christansen and Bunt 2012; Burns et alii, 2006; Manzini and Staszowski: 2013; Deserti and Rizzo, 2015). MYN is a clear example of this kind of projects and many other cases are going on in Europe.

In these projects design is playing more a transformative role that argues for challenging established structures and triggers changes in public organisations and how they produce innovation and policy instead of focusing on productivity, efficiency, users' experience, or improving services within existing societal structures (Deserti and Rizzo, 2015; Botero and Saad-Sulonen 2013; DiSalvo 2012).

Moreover, this new wave of projects is disseminating a new view on innovation in public services as experiments in progress that can affect the way in which public institutions work and how they produce policy.

First, design culture and methods help to create a legitimate space for experimentation that contains risks and expectation, and supports learn from (low-cost) failure where the cause of a problem is unknown, or where practices still are evolving.

This is different from working by running an initial pilot prior to launching a full programme that is often the way in which public organisations deal with innovation (and which has its own risks). When pilots hold profile, political capital and considerable investment, failure can have considerable costs. The expectation from experimentation is not necessarily success, but learning from practice. The concept of prototype is relevant here. It changes

expectations of performance and permanence of public services, given the signal of early-stage development and on-going learning. Prototypes not only welcomes feedbacks but proactively encourages challenges and critique from the public, potential users, colleagues, partners, experts and other relevant actors. In this way imperfection become a legitimate and even expected part of the processes devoted to experiment with innovation.

Second, projects like these show how much design is fruitful with regard to design policy since it takes the dynamic relationship as the premise in their development (Christiansen and Bunt, 2012; Brown et alii, 2010; Burns, 2006). Policy can no longer be seen in its own right, but only makes sense when seen in relation to its practical outlook and consequences. Unlike the traditional understanding of policymaking and governance as the rational development of models, design is predisposed to more iterative creation and stewardship, closing the gap between development of the model and its implementation. Design as a discipline is also more comfortable with complexity and uncertainty, and is therefore commonly used as an innovation method. Though over-simplified, a core strength of a design approach is that it starts from understanding the architecture of the problem; both focusing on the concrete causes and consequences involved as well as the interconnected systems and networks involved in dealing with it. Taking on different perspectives, asking new questions, reframing challenges can introduce innovation into thought or action processes by creating a tension with common interpretation. In asking different questions, a design approach can point to different trajectories for addressing the problem.

However the current trend for involving designers and developing design-based project in public services to deliver innovation creates new opportunities and this is a huge chance to embed design into different public processes. A lot of work as to be done to find ways to measure the provoked innovation and impacts effect of design culture in the public sector, both at services level and at organisation level.

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Data-Need Fit – Towards data-driven business model innovation

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Abstract

Today's world is one of growing data, yet few companies have succeeded in leveraging data for novel business models. This paper aims to provide an evaluated approach to understanding what kind of data is available and to matching data with potential user needs for compelling value propositions. For this purpose, the paper introduces, on the one hand, the Data Canvas as a new method for considering data resources systematically in the development of business models and, on the other hand, the Data-Need Fit as a conceptual basis for the established business model innovation process according to Osterwalder, Pigneur, Bernarda & Smith (2014). Applied in a case study, the Data Canvas proved simple to use. Integrated into a service design process, it may help companies to leverage data as a resource in business model innovation.

Keywords: Big Data, Business Modeling, Business Model Innovation, Service Design, Data Canvas, Data-Need Fit

Introduction

The catchword Big Data sums up developments in information technology that have resulted in a situation where the amount of data is growing faster than the technology with which to process it. Despite the growing amount of available data, so far only 4% of German companies have leveraged data to develop new business models (BITKOM 2012).

Contemporary business logics of value creation and processes for business model innovation are introduced to outline the knowledge gap in using data as a key resource in business models. Such business models are understood as data-driven business models (Hartmann, Zaki, Feldmann & Neely 2014). Based on the conducted literature review, we consequently introduce both a method and a process for this purpose. Data Canvas and Data-Need Fit help organizations envision services that use data to help customers achieve their aspirations. This process integrates well with established processes such as Lean Startup which can then be used to refine value propositions based on customer feedback.

Theoretical Background

In recent years, business logics of value creation have changed from a goods-dominant to a service-dominant logic. However, this changing mindset is barely reflected in contemporary processes for business model innovation. Moreover, these processes provide little guidance for leveraging data as a resource in business model innovation.

Contemporary business logics of value creation

“Like all humans, business managers are socialized into a *dominant logic*-shaped by the attitudes, behaviors and assumptions that they learn in their business environments”(Prahalad & Ramaswamy 2004, 37). For decades, a goods-dominant logic has shaped thoughts and actions. In that logic, value is added in a linear value chain and exchanged with the customer in the end. In recent years, goods-dominant logic has been gradually replaced by service-dominant logic (Vargo & Lusch 2004) and the similar Nordic school view of service logic (Grönroos 2006). In that logic, rather than a category of offerings, service is seen as a perspective on value creation with goods as value-supporting resources and services as value-supporting processes (Grönroos 2006).

Apart from functional requirements, customers engage in service for more profound social, emotional and personal aspirations (Osterwalder et al. 2014). The Jobs-To-Be-Done framework can be applied to understand customers’ processes. It builds on the understanding that “when customers find that they need to get a job done, they ‘hire’ products or services to do the job” (Christensen, Anthony, Berstell & Nitterhouse 2007, 38). Bettencourt, Lusch & Vargo (2014) propose a “service lens” (2014, 45) that combines the Jobs-To-Be-Done framework with service-dominant logic. With the service lens, companies support their customers in accomplishing their jobs and realizing their desired outcomes.

Resources possess capabilities that give them value potential, which is realized through service. Vargo and Lusch (2011) distinguish between operand and operant resources. Operant resources are knowledge and skills that produce effects while operand resources require additional operant resources for value creation. Data is a typical operand resource. It requires the application of knowledge and skills to become valuable. During service provision resources of a provider interact with resources of customers.

In an increasingly interconnected world, value is usually not created by a single provider (Vargo & Lusch 2011). In service science, value co-creation configurations are referred to as service systems. In order to innovate, service systems need to understand and match their own capabilities with needs of other service systems (Maglio & Spohrer 2008). Each actor must understand its role in the system as well as its overall configuration and revenue streams (Bettencourt et al. 2014).

According to service logic, value emerges in the customers’ processes and cumulates over time. Only customers are able to realize and determine value. For these reasons, Vargo & Lusch (2004) introduce the concept of “value in use”. Subsequently, they extend this concept to “value-in-context” to acknowledge the contextual nature of value creation (Vargo, Maglio & Akaka 2008). Value is contextual because customers have unique access to resources, may require different resources in different situations and have unique prior expectations (Bettencourt et al. 2014). With the service lens, value for customers depends on how well their jobs-to-be-done are accomplished. “Value-in-achievement” further extends the concept of value-in-use or value-in-context and moves the locus of value creation even further ahead in time (Bettencourt et al. 2014).

While Vargo & Lusch (2004) argue that when customers determine value in use, providers can only offer value propositions, Grönroos (2006) criticizes the concept of value proposition as influenced by goods-dominant logic. Within the service logic, providers are not restricted to proposing value; they are also able to influence value fulfillment. Thus, a value proposition for a service should be seen as presenting a potential value-in-use and then mobilizing the resources to facilitate value fulfillment.

Contemporary processes for business model innovation

In recent years, different approaches, methods and processes have been developed for business model innovation. With the Business Model Canvas, Osterwalder and Pigneur introduce a framework for business models that they define as “the rationale of how an organization creates, delivers, and captures value” (2010, 14). In nine building blocks, the canvas summarizes how companies intend to generate revenue.

While the Business Model Canvas is useful both for physical products as well as for services, it was developed based on a goods-dominant logic. This becomes apparent as the Business Model Canvas can be visualized in the form of a traditional linear value chain in which value is created by the provider at the left-hand side for customers at the right-hand side of the canvas (Lüftenegger 2014). In addition, co-creation is merely considered a category of customer relationship (Osterwalder & Pigneur 2010). In this structure, it is hard to map how customers and partners impact other parts of the business model (Lüftenegger 2014; Zolnowski, Semmann & Böhmman 2011). Ojasalo & Ojasalo (2015) have refined the Business Model Canvas to reflect service logic. In their Service Logic Business Model Canvas customers are considered in every building block. Trigger questions address both the providers’ as well as the customers’ point of view.

As an innovation process with a clear focus on the business model, Lean Startup has gained popularity among practitioners in recent years. In the first step of this process, the initial vision of the underlying business is documented in the Business Model Canvas or a slightly adapted Lean Canvas (Maurya 2012). Because this initial idea is solely based on assumptions, startups need a process for customer development along with product development (Ries 2011). First, in the (i) customer discovery phase, startups test if there is a market for the envisioned service. They identify customer segments and perceived value of the solution. Problem-Solution Fit occurs when a value proposition, at least in theory, addresses relevant jobs, pains and gains of customers. In the (ii) customer validation phase, startups experiment with different elements of their business model with the goal to find a repeatable model. Product-Market Fit is achieved when it can be demonstrated that customers are, in fact, willing to buy. Execution starts with (iii) customer creation. Once hypotheses are proven and the product is adequately polished, marketing is called in order to obtain a broad user base. Business Model Fit is achieved when the value proposition is embedded in a profitable and scalable business model. Ultimately, a startup makes the step to (iv) company building in which they transition to a company with functional departments.

For organizations acting under uncertainty, effectuation is a particularly useful decision model. “Effectuation processes take a set of means as given and focus on selecting between possible effects that can be created with that set of means” (Sarasvathy 2001, 245). Given means comprise physical resources (“Who is the firm?”), human resources (“What does the firm know?”) and organizational resources (“Who does the firm know?”) (Sarasvathy 2001; Bettencourt et al. 2014). Effectuation is distinct from Lean Startup in that it starts with resources rather than an initial idea. In this regard, both approaches complement each other since an initial vision can be developed through effectuation and then validated through Lean Startup processes. This combination allows companies to experiment with more ideas at a low level of investment.

Knowledge gap in data-driven business model innovation

In practice and in the literature, there are hardly any processes that can be specifically used for systematic design and development of business models leveraging data as a resource. In addition, existing processes are designed to validate and implement an initial vision of a

business model in the marketplace. For organizations however, the challenge is more in how to systematically envision new business models. Service Design generally starts with exploring the needs of users. However, as long as neither audience nor value proposition are defined, organizations are faced with the dilemma of how targeted user research can be initiated and carried out.

Following an effectual approach, possible effects can only be evaluated once “given means” are sufficiently understood (Bettencourt et al. 2014). In this context, “given means” are mainly partnerships and data to which an organization has access. For the most part, businesses and corporations are stuck in a dilemma: Employees and departments of a company who do have an overview of available data are usually not involved in the development of new business models. Conversely, those who are entrusted with the design and development of business models are rarely conscious of all the available data.

While there is no dedicated process for business model innovation, a questionnaire most often guides through the discussion (Zolnowski & Böhmman 2011). A visual representation such as the Business Model Canvas provides a framework of where to insert specific information (Osterwalder & Pigneur 2010). For the systematic development and documentation of partners and their relationships, established methods such as a Stakeholder Map can be applied. However, no established method could be identified from the literature or practice that helps understanding the available data.

The gap that the paper aims to fulfill is twofold: Firstly, the Data Canvas is introduced as a method to systematically collect and document available data. Thus, it provides an understanding of its potential value-in-use for all actors in a service system. The Data Canvas complements existing methods that are orchestrated for the development of business models using the process of Osterwalder et al. (2014). Secondly, Data-Need Fit is introduced as a process to match available data with user needs. Data-Need Fit triggers the established process of business model innovation.

Methodology

The development and evaluation of the Data Canvas and Data-Need Fit followed a design oriented research methodology called Design Science Research (DSR) – creating things that serve human purposes and assessing them against criteria of value or utility (March & Smith 1995). The two basic iterative activities in any design science research are the building and evaluating of a “design artifact” – in our research the Data Canvas and Data-Need Fit. Following the design science methodology, we (i) elicited requirements to ensure real-world relevance for the method and the process; (ii) grounded the development of the artifacts with the help of methods, namely a participative approach including various workshops, and (iii) evaluated the artifacts within a real-world project setting applying mostly qualitative methods.

Because the artifact is aimed to be generally applicable, three experts were interviewed and literature was reviewed in order to understand current processes and obstacles beyond the underlying case project. Due to the lack of a structured approach for the understanding of data sources, the Data Canvas was developed in a collaborative workshop setting carried out with five participants from varying business and technology backgrounds. Participants were two senior data analysts with backgrounds in information technology and statistics, two doctoral candidates in Information Systems with business backgrounds and one of the

authors who facilitated the workshop and introduced prior considerations on an equal level with other contributions.

First, dimensions to describe data sources in order to explore their potential for new services were collected in a silent brainwriting session and then grouped into clusters. This resulted in seven clusters with a total of 35 attributes identified. In a second step, participants each sketched three rough conceptions for a visual representation of those dimensions and then build upon the ideas of others. At the end of the exercise, participants chose their favorite representation from 75 rough ideas presented on the wall through dot voting. The favored conception was further refined by collecting ideas for a visual representation of each cluster. Subsequent to the workshop, the Data Canvas prototype was finalized and applied twice. Before applied and evaluated in a case project it was tested and further improved during an Open Data Hackathon. The prototype was further developed based on discussions at events such as OpenUp Camp Nuremberg, an unconference for innovation, technology, and business.

Results

As a result, this paper introduces a method and a process for data-driven business model innovation. The Data Canvas helps to establish a common understanding of available data in organizations. Subsequently, Data-Need Fit triggers the established process of business model innovation.

Data Canvas

Figure 1 displays the Data Canvas, which is structured along two dimensions: (i) the *origin* and (ii) the *refresh rate* of the data. *Internal data* is the property of the organization while *external data* is supplied by partners or other external sources. *Rotational data* is – depending on the context – data that is updated in certain intervals, e.g., yearly. In contrast *continuous data* is available on at least a daily basis or in real-time.

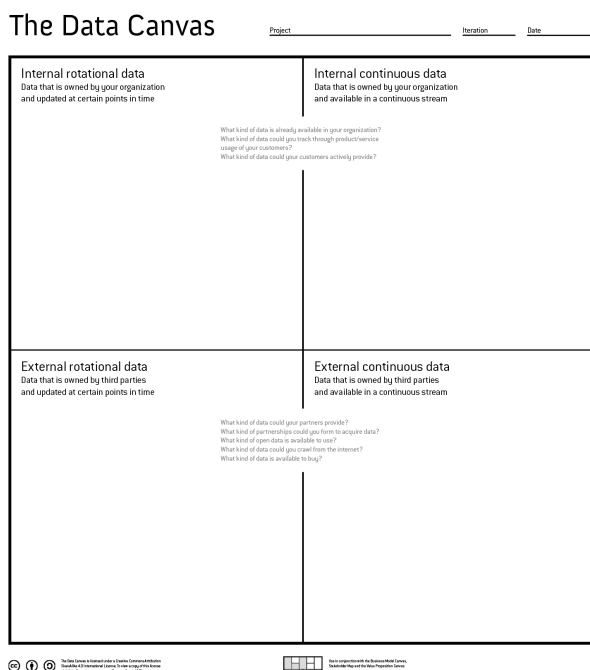


Figure 1. The dimensions of the Data Canvas

These two dimensions were chosen because initially, two factors are crucial for the development of innovative and sustainable business models leveraging data: (i) permanent access to relevant data and (ii) potential for continuous monetization of available data. In principal, continuous internal data is regarded as having the greatest potential for the development of sustainable business models. Companies have full control over the data and a continuous stream of high-frequently retrieved data permits regular monetization. For external data in contrast, it is possible that data is no longer provided or available (e.g., because of changed terms of use in technical interfaces). In addition, competitors usually have access to the same external data and hence could easily copy or improve an existing business model. Thus, we argue that external data has the least potential for business model innovation.

To simplify the use of the Data Canvas for all participants, we suggest utilizing sticky notes. Each sticky note represents a data source that is clearly identified and outlined by its specific thematic and contextual information. If sticky notes in different shapes and colors are available, then these can visualize other data attributes. For example, rectangular sticky notes could be utilized to represent structured data sources and round ones in contrast to represent unstructured data. Green sticky notes could be used to display trusted data sources, such as administrative data. Yellow or red sticky notes could be applied to represent less trustworthy data sources, such as data from social media platforms. Depending on the context, other relevant attributes of data sources could be indicated in the corners of the sticky notes with a legend provided in the right-hand side of the canvas (see Figure 2). One example would be indicating that the use of the underlying data source is associated with an expense.

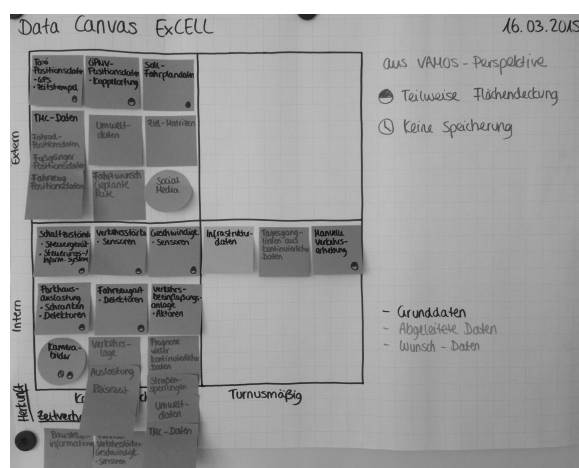


Figure 2. Exemplary Data Canvas.

Completing a Data Canvas ideally in a workshop setting with participants from different departments and diverse expertise reveals potential strengths and weaknesses of data sources available to organizations. It clarifies thematic and contextual priorities as well as limitations on applicability and availability of data. The Data Canvas is not a static document and it should be continuously adapted as data sources change.

Data-Need Fit

Data is a valuable resource in value creation whenever it can be used to help customers achieve their goals. A fit between available data and user needs is vital for a compelling value proposition. From the perspective of data-driven business model innovation, it can therefore be argued that there is a need for another stage before realizing a Problem-Solution Fit. A Data-Need Fit occurs when one or more available data sources have been identified that

have the potential to support relevant customer tasks, alleviate problems, or create benefits for the user.

Once organizations sufficiently understand their available means, they are ready to initiate and carry out targeted user research. For instance, a Stakeholder Map can be used to understand the configuration of service systems and to narrow down actors who are most likely to benefit from available data. Use of a Data Canvas is able to inform user research in terms of a relevant study context. Fields for which particularly high-quality data or multiple data sources are available are worth to explore first.

Depending on the context, different user research methods can be applied, such as contextual interviews, shadowing or cultural probes (Stickdorn & Schneider 2010). The Jobs-To-Be-Done framework represents a useful unit of analysis because customers are able to verbalize what kind of support they would require in order to accomplish their jobs more satisfactorily. Furthermore, Ulwick & Bettencourt (2008) stress that the method is secondary and that any interaction with customers is useful as long as providers are clear about their goals.

Subsequent to user research, patterns can be identified to segment users for example based on the jobs they are trying to accomplish, use context, current barriers, access to resources, and personal attitudes such as desire for control (Bettencourt et al. 2014). Bettencourt et al. point out that in value co-creation “*customer choice* becomes critical to success” (2014, 54). Rather than addressing a mass market, organizations need to find customer segments that are both willing and able to co-create.

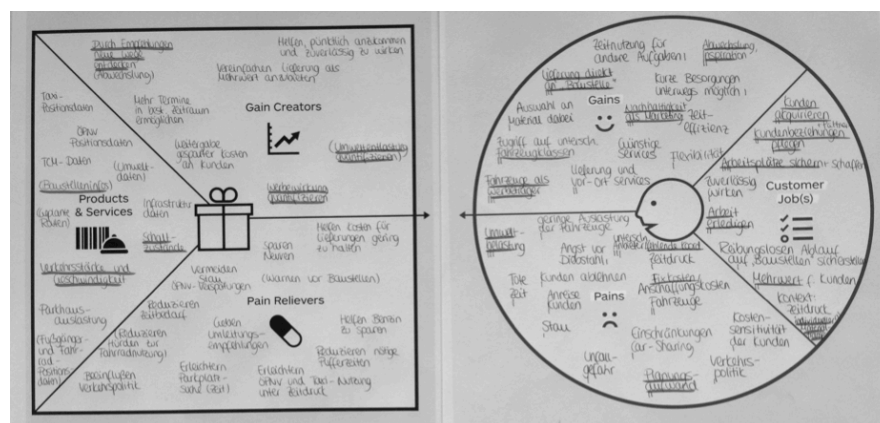


Figure 3. Exemplary Value Proposition Canvas.

The Value Proposition Canvas shown in Figure 3 can be utilized to identify a Data-Need Fit on the basis of a completed Data Canvas and insights collected through user research. For each user segment, the results of the user research are placed in the right-hand part of the Value Proposition Canvas – the Customer Profile – in the form of jobs, pains and gains. Subsequently, the left part of the Value Proposition Canvas – the Value Map – must be completed. In this step, data sources identified in the Data Canvas are considered in place of products and service. In the value map it is shown how data sources create benefits or contribute to easing pain points for each user segment. A Data-Need Fit is found when data sources contribute gain creators and pain relievers that users find valuable.

From Data-Need Fit to a sustainable service provision

A Data-Need Fit is a vital condition for designing a compelling value proposition. The Value Proposition is at the core of a business model and defines the products or services that

create value for a customer segment (Osterwalder et al. 2014). In this case, it describes how data is embedded into an offering that facilitates value creation for users. A second Value Map within the Value Proposition Canvas can be used to describe the service to be developed. If the Value Map, on the basis of results from user research, provides solutions for relevant user problems and creates benefits, then a Problem-Solution Fit has been found. Other elements of the Business Model Canvas such as customer relationship and channels result partly from the value proposition; others such as the pricing model may be experimented with.

Since the Business Model Canvas is initially based on assumptions, early feedback from users is required to learn which of the assumptions hold true. Established processes, such as Lean Startup, offer a systematic approach for validated learning. Through interactions of users with a Minimum Viable Product (MVP), “that version of the product that enables a full turn of the Build-Measure-Learn loop with a minimum amount of effort” (Ries 2011, 77), organizations gain qualitative and quantitative feedback. Failing early allows experimenting with different options. This increases the chance to find a viable business model before running out of resources. Figure 4 visualizes how the Data Canvas and Data-Need Fit are anchored within the established process of business model innovation.

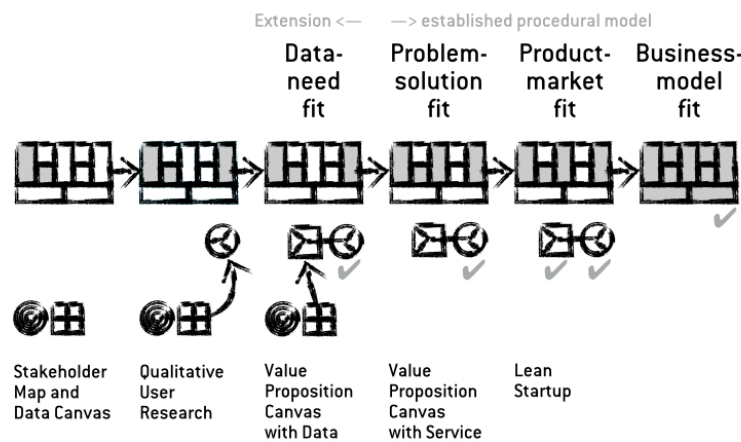


Figure 4. Data Canvas and Data-Need Fit add to the established process (adapted from Osterwalder et al. 2014).

In cases in which service providers directly interact with customers, they are able to influence value fulfillment beyond value propositions (Grönroos & Gummerus 2014). For the purpose of understanding which actions are required from the provider in order to efficiently support the customer journey, Service Design provides useful methods such as service blueprints. These methods should be applied along the business model innovation process so that organizations understand what is required of them and are consequently able to keep promises made by value propositions.

Conclusion and discussion

This paper proposes a structured yet flexible approach to considering data as a resource in business model innovation. Both a method and a process are introduced. Data Canvas and Data-Need Fit are intended to spark a discussion on available data in organizations among diverse stakeholders. The Data Canvas provides trigger questions and a visual representation that help to develop a common understanding of available data. This allows assessing the potential value-in-use of data as well as risks involved in using the data for the development

of business models. Furthermore, gained understanding of available means facilitates targeted user research. Insights from user research subsequently serve as a basis for identifying a Data-Need Fit, the identification of Jobs-To-Be-Done that are relevant for users and that can be supported with data available to the organization. The Data-Need Fit adds prior steps to the established process of Osterwalder et al. (2014). A fit between data and user needs ensures a value proposition that is relevant to target users.

In the case project ExCELL, applying the described process has proven to be efficient. The structured approach of the Data Canvas allowed getting an extensive overview of available data in a limited timeframe. Available data narrowed the scope for user research in terms of target group and topic. Pilot user research has revealed opportunities that may be tackled with the available data. Subsequently, these will serve as a starting point for designing a compelling value proposition embedded into a viable business model.

The Data Canvas has shown to work best with diverse data sources. When data sources are similar in terms of the chosen dimensions, it produces limited insight. With the vast amount of external data sources available to buy or to use for free, it is vital to define criteria beforehand to limit the scope. Desk research may be required to uncover relevant data sources. Even with data sources identified, the difficulty remains to envision what information can be generated from that data. Multi-disciplinary teams are needed to thoroughly discuss data from different perspectives.

Developed and applied in a single project, future research will be necessary to test both the method and the process in more projects and different contexts. Furthermore, it remains to be proven that the two conceptual artifacts have the potential to provide a common language that bridges the existing gap between a technology and a business perspective.

Acknowledgement

The underlying research was conducted in the context of the research project ExCELL – Real-time analysis and crowdsourcing for a self-organized city logistic. ExCELL is funded by the German Federal Ministry of Economy and Energy (BMWi) (BMWi – FKZ 01MD15001A). It is a joint project of the FELD M and various partners. For further information, see [www. http://www.excell-mobility.de](http://www.excell-mobility.de).

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Towards diffuse forms of public governance: service design, open data and disruption in the private rented market

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Abstract

This paper discusses the contribution of service design in not only reducing barriers to accessibility but more importantly crafting alignments in complex interplays of power and balances of demand and supply in public service delivery. It examines the role of open data as a material for design and its public value in public service innovation.

KEYWORDS: public service innovation, service design, open data and public value

Introduction

Increasingly, design thinkers and the emerging discipline of service design (Manzini 1993; Sangiorgi & Meroni 2011; Bason 2011, 2014, Junginger 2013) is concerning itself with the contribution of design thinking, practices and user centred approaches to service innovation in the public sector. Services are understood as

[C]omplex, hybrid artefact[s]. They are made up of things - places and systems of communication and interaction - but also of human beings and their organisations. Permeated with human activity as they are, they can never be reduced to the simplicity of mechanical entities. Like all complex entities they are largely un-designable. On the other hand, for this very reason, precisely because they appear to be un-designable, it is both useful and necessary today to develop a new, service-oriented design culture and practice. (Manzini 2011, 1).

Junginger (2013) suggests the design of services in a public context is not a new practice, as “[g]overnments have always been in the business of designing” (2013, 18). She suggests much of this activity is carried out by silent designers (Gorb & Dumas 1987) who create systems, policies and institutions which fundamentally shape our experiences of public services and governments. Although designing services and systems is an emerging area for the design field and profession, “the design of services has a long history and tradition in the public realm ... [and] services remain first and foremost instruments for policy-making” (Junginger 2013, 19).

The contribution of service design and design more generally, is its ability to bring to the fore a deep understanding of how to embody knowledge in man-made things (Archer 1994) and create user experiences that are desirable and attractive (Bason 2014).

This paper discusses the implications of a design case study where open data features as a key element of the design process and outcome. The case study addresses housing affordability in the private rented sector (PRS) and provides an alternative approach for governments to regulate rent levels and the quality of accommodation in this sector.

In the UK, the 1988 Housing Act removed control on rents, leaving the market to determine prices, agreed through a direct contract between landlords tenants. The PRS is comprised of many landlords with small portfolios, making regulation and the implementation of policy in this sector a very complex and costly undertaking. A lack of action by successive governments to tackle such issues has meant renters - as consumers of a service - currently have limited protection from poor practices and standards. Traditional policy instruments of rent control and regulation on quality of standards are either resisted or have historically had an adverse impact in the sector.

The case study presented in this paper discusses the application of open data to a digital service platform designed to disrupt practices in this market and drive transparency into a de-regulated market. We discuss the relationship between service design, policy implementation and innovative vehicles for delivery of policy outcomes and social impact. It shows how a service design approach can support policy design processes to address market imbalances and deliver social impact. A key element of the case study is the application of open data and open data principles to support, through information, more transparent practices. The paper points to the opportunity of extending the role of service design beyond making policy implementation more user-friendly and accessible, towards its role in exploring new diffuse and collaborative mechanisms for policy delivery (Hartley 2005, Christiansen and Bunt 2014).

Imbalances of power and lack of policy instruments

Historically in the UK, housing policy has been characterised by more favourable policies towards home ownership and social rented housing. Up until the 1988 Housing Act, the PRS was tightly regulated through laws which regulated rent levels and ensured long term security of tenure. These tight restrictions meant the private rented sector offered low return rates and a poor investment option to landlords (Haffner et al. 2009). The net effect of these meant landlords seized every opportunity to exit the market (Kemp 2004) and resulted in an effective reduction in supply (Haffner et al 2009, 44).

The 1988 Housing Act removed any regulation over rents and, in introducing contractual agreements between landlords and tenants, shifted these responsibilities to individual transactions between tenants and landlords. It also removed any form of control on rents, which could now be set freely according to market prices and tenants' ability to pay. Contractual agreements set expected quality standards of accommodation and ensured a minimum 6 months of security of tenure to any tenant renting the PRS.

From a design perspective these individual contracts became the principal touchpoint and tangible mechanism to enshrine the interaction between tenants and landlords. From a policy

perspective, the contracts became the principle, yet extremely fragmented way, for governments to regulate practices in the sector.

From 1991 to 2001, in the UK, the number of households in the sector rose by 27% and the number of people renting in the sector increased by 44% (Ball 2004, 10). A recent study by Scanlon et al (2014) confirms the situation in cities like London is particularly acute with the size of the sector more than doubling since 1991 (11).

Policy makers have limited data available to them about landlords operating in this sector or the quality of properties on offer. From a policy perspective, and in particular policy design point of view, this is problematic.

The most comprehensive and recent survey of landlords was carried out by the Department of Communities and Local Government in 2010 which highlight the extent to which the sector is fragmented. 89% of landlords operating in the sector are private individuals, who own a small portfolios of 2-4 properties (DCLG 2010).

Our research showed many of these landlords reluctantly rely on letting agents to set prices. Many were aware agents set opportunistic prices, which benchmarked against other speculative prices, increase landlords' risk of arrears and voids.

The high demand for properties pushes tenants into over committing on rents and means many compromise on the quality of the property, at high personal costs to themselves and their families (Alakeson et al. 2014). Recent figures suggest that in London, more than a quarter of tenants renting, pay more than half of their income on rents (Alakeson et al. 2014).

The speculative nature of the PRS market and the surge in demand has a wide ranging social impact on tenants' health, well being and levels of child poverty (Social Mobility and Child Poverty Commission 2014; Shelter 2012). In London, where the effects of high demand are more acute, industry bodies are suggesting this is having an adverse effect on national economic productivity (CBI 2013). The wider social impact is felt in delays to family formation (Doling 2012) and the substantial £10 billion bill to the Department of Work and Pensions (2014).

The PRS, from a policy making perspective, presents itself as a very complex system for intervention, given the volume of providers and its cottage industry characteristic. Regulating such a fragmented market is costly and limits the capacity of governments to design and implement policies. Strong resistance from landlords to government intervention coupled with the increasing attractiveness of real estate investment as an alternative to pensions further increases government's reluctance to intervene. Mounting public opinion and the thousands of tenants in this sector, who increasingly are priced out of home ownership (Ronald & Elsinga 2012) are pressuring governments to act.

From a design perspective, the issues of the private rented sector faced by policy makers can be understood as a *wicked problem* (Rittel and Webber 1973). It is this complexity of competing interests and imbalances in supply and demand that the case study set out to address.

An alternative to rent controls: designing for social change

It is first important to comment on the methodology applied in the case study. It uses action research (Checkland 1981) as a model of design research for analysis and the design of project outcomes. For this reason, the researcher also plays the role of designer, actively and reflexively interacting with both the object of research and design outputs. It is also worth noting the authors are also co-founders the company set up as a result of the case study development.

The case study explored in this paper is a digital service which connects tenants and landlords directly around the best rent price. The overall design vision was to use information to bring transparency into the PRS and correct its inefficiencies in two ways.

The first and central to the design proposition is fair rent pricing. Through an innovative calculator, a series of open data sets and data generated by users to calculate a robust pricing model. The intention is that the calculator encourages fairer and more transparent deals that are more affordable for renters while optimising a return for the landlord.

For the design process, building an understanding the market was key to developing an efficient rent price calculation to reduce the time properties sit empty between tenancies and ensure a good and fair deal between tenants and landlords. Open data not only powers the design proposition and the technology sitting behind it but also helps generate further public value in the form of data about real-time pricing, void periods and the experience of living in those homes.

To develop the pricing baseline for the calculator, a collaborative co-creative approach was taken alongside experts on open data, machine learning, housing, policy. These explored how principles of fairness and transparency could be made tangible and be translated into the technology and calculations.

The second element of the proposition uses the digital interface to encourage more transparency in practices and better matching of demand to supply. The idea is that users can close deals for properties at these efficient prices. They can access matchmaking features to agree the terms of their deal and make the contract exchange fast, easy and significantly lower transaction costs and time to complete the contract exchange.

From a design perspective, the design strategy seeks to stimulate better behaviours and operationalise a number of policy initiatives, as Landlord Accreditation Schemes and best practice on longer tenancies. By getting landlords and tenants to input further information, to obtain a more accurate calculation and close agreements online, it offers a mechanism for regulation which is user led and demand driven.

As part of the design process, the data assumptions for the rent calculation were modelled using a sample of 100 properties in Hackney, London. The modelling tested different assumptions for pricing and applications of open data and demonstrated a market for the proposition, working for 69% of the chosen sample. The accuracy rate for calculations has since been confirmed following a crowdsourcing campaign to launch the service.

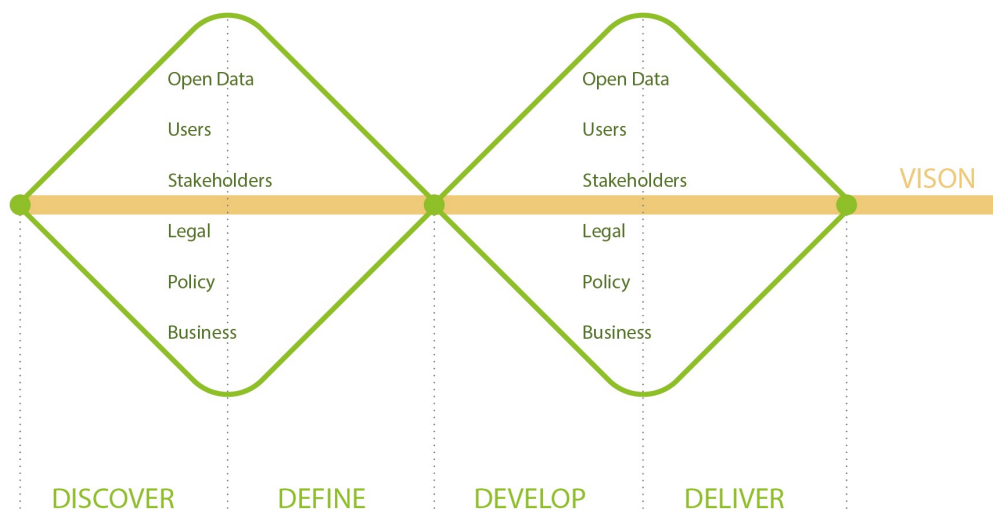
It also demonstrated the business model saving landlords an average 85% in fees and costs associated with letting and tenants an average of £1300 per year. The intention is that the savings generated means tenants can afford to pay an electricity bill or save for a mortgage, and landlords are guaranteed a return.

The wider design vision is to deliver a user driven tool to help the market to regulate itself, empower people with the ability to make real choices and offer a mechanism for regulation which is user led and demand driven, which could enable, given the right support, the market to regulate itself.

It seeks to disrupt the market as a way of increasing housing affordability and build an ecosystem where government subsidy and policy, institutional partners, and innovative approaches can be combined through a platform approach.

Service design, social impact and data as a public good

The design process, described in the diagram below, uses the broadly accepted iterative cycles of divergent and convergent modes of enquiry common to the design process (UK Design Council).



The development of the case study was a response to a challenge call run by Nesta and the Open Data Institute. The aim of the challenge was to “generate innovative and sustainable open data solutions to social challenges”, and in this case, to help people get the best out of renting.

To kick off the process, the design team developed a deep understanding of the problem following a comprehensive desktop research and information from initial user research provided as part of the call. In addition, one of the design team members has extensive academic research and practical experience of housing.

The design team approached open data as any other material used as part of the research and exploratory phase of the design process. To appropriate the data for use in the design purposes, the team carried out an extensive mapping exercise of all the available data sets, categorising them according to type, comprehensiveness, usability, scope and baselines they provided. The mapping exercise involved building a comprehensive picture of the opportunities for design provided by these data sets. These were cross referenced and cross

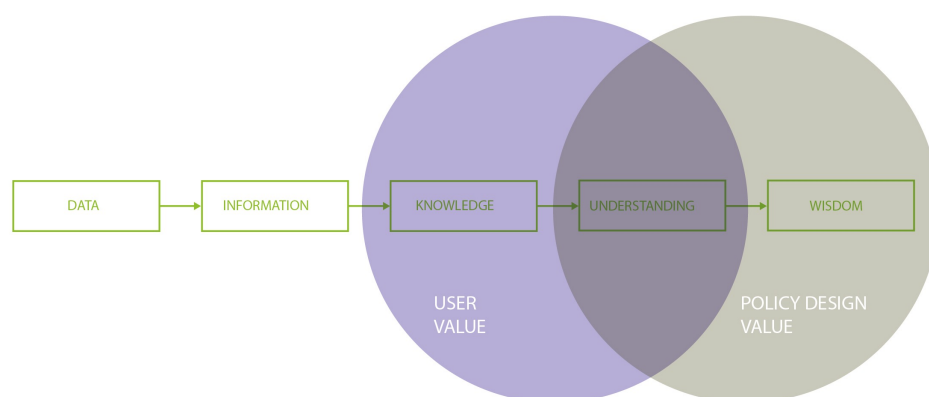
pollinated with known problems and service opportunities which emerged from combining a different series of data sets. The result was the definition of the design proposition, which was broadly scoped, ideated and developed into a brief following the well established design process.

Following on from the definition of the idea, the design team worked iteratively to not only test the concept with users, but also validate the concept from a business perspective. Also key in the development of the idea was testing open data assumptions and foundations. The outcome of this phase of work, culminated in refining the brief and forming a hypothesis to be taken into the concept design and develop stage.

The design team conducted a comprehensive design stage, which involved co-creating and working iteratively and collaboratively on the development of the user journey, service blueprint, main interfaces and touchpoints. Just as significant was the use of design's divergent and convergent thinking and practices in separate design activities for the open data, business model and theory of change elements of the project. Each of these strands were developed following principles of the design process for validation and in preparation for design implementation.

Both service design and broader design principles were fundamental to the development of the proposition. The design of the service and its interface sought to simplify and translate complex information about rents and models of return. The match-making functionality is a good example of how service interfaces were created to not only improve the user experience but also embody policy initiatives while at the same time de-institutionalise them. Design's ability to bring tangibility and materiality to services and systems is well documented (Panceti 1998; Secomandi and Snelders 2011; Sangiorgi and Meroni 2011). But its role extended well beyond that.

There is an extensive legacy and body of literature by designers and researchers in the field, who discuss the role of a strong vision and broader purpose for design activity and outcomes. Although prominent in past debates around the role of design, this practice is not commonly featured in more recent writing about the service design process. From the outset, a key element of the design case study discussed in this paper was to design with a very clear social impact vision and view to designing for housing affordability.



Interpretation of Ackoff's DIKW pyramid

What is most critical to the design of the case study was an understanding about how to best use open data to build the interconnected, collaborative, and systemic nature of service exchange, opportunities for the co-creation of value (Sphorer et al 2007; Vargo & Lusch 2004; Weiland et al. 2012;) and reciprocal resource integration (Martinez and Turner 2011, 12).

Open data, was the essential raw material from which value could be extracted as part of the design process. The transformation of open data into knowledge, information and understanding followed broadly Ackoff's (1989) pyramid (pictured). In it, Ackoff suggests data in itself has little value if information and more importantly knowledge and understanding cannot be gained from it. In our case, the application of open data, meant being able to generate information and knowledge and essentially create value for users.

Value could be co-created by both landlords and tenants, in the form of a calculator which could address imbalances of information and therefore power in these relationships. To continue to generate value and knowledge from original data sets, the calculation is refined through user generated data on specific properties further adding value to the pricing models. In order to do that, the design process focused heavily throughout on exploring which combinations of data could yield the greatest value to both renters and landlords. Aligning value networks and co-created value were thought through from the premise of the knowledge, understanding and value generated to address major imbalances of power in the relationship between these two parties.

The application of open data was therefore a critical ingredient in the service design process. By transforming raw data and information into knowledge and understanding, the case turns data into a service. This is not the same as data visualisation (*information*). Instead, RentSquare actively extracts value from open data (*knowledge*) to design and build a service proposition (*understanding*). The value the service generates for the user is a fairer price and better matches between tenants and landlords, resulting in a more efficient market. It also addresses major imbalances of power in this relationship which allows traditionally antagonistic relationships to be made more mutually beneficial. Finally from a policy perspective, it provides a mechanism to deliver the functionality of regulation in a collaborative and alternative way.

Essentially, in this case, the role of open data in the service proposition, gives legitimacy to the value created. It brings trust to the service due to the accuracy and robustness of the pricing model. Moreover, this gives the service design process capacity and agency for change.

In the public sector, the idea co-production is gaining increasing traction as a tool for collaborative design of future services and social innovation (Cottam and Leadbeater 2004; Parker and Heapy 2006; Mulgan and Tucker 2007, Manzini 2011; Bason 2011, 2014). The implication of the co-productive nature of value co-creation and design for diffuse value networks (Manzini 2011; Mont 2002; Stahel 2006) compounds the dimension of complexity but at the same time in this case offered opportunities for action.

The case demonstrates the potential disruptive role of open data and technology, their power as a design tool and driver for social change. Open data and the calculator development played a fundamental role in supporting the design outcome. It also demonstrates a case, from a policy design perspective, of data as a public good and asset (Digital Government Review 2014) and its application.

Considerations for Policy Design

The consensus in public policy theory and practice is that policy making:

1. [F]ocuses on Dewey's (1927) expression of 'the *public and its problems*' (Parsons, 2005, xv)
2. [R]efers to actions of public actors (typically governments), although societal actors might to some extent be involved or participate in *public decision-making*. (Knill & Tosun 2012)
3. Is a *problem solving activity* (Laswell 1956; Birkland 2010).

Policy makers have designed several instruments to implement actions and solutions. Some which include both direct and indirect regulation, taxation, and subsidy incentives, and in the case of the PRS, have been deployed widely, and in a range of ways.

From a policy design perspective, the case study can be seen as a potential new mechanism to deliver public good, but it raises a number of questions. It particularly raises questions from the perspective of institutional design (O'Toole 2003: 234) and how it affects, complement or even compete with existing public and private institutional arrangements and structures.

These include:

1. What are the wider governance implications if regulation in the private rented sector came to be delivered through similar mechanism?
2. How can accountability be delivered by different institutional partners to ensure public value?
3. Should policymakers be thinking about policy innovation through new institutional frameworks and what then would be the role for government?
4. From a housing policy perspective, does the case study mean the effective creation of an intermediate private rented sector?
5. What are the critical measures for demonstrating impact and responsibility for delivery of these? And what is the role of policy makers in designing the legal and administrative frameworks to support implementation.

The question of market adoption are critical in this case. If it provides an alternative to rent regulation, market traction is key to ensure it can deliver its outcome. Also critical to understanding the role of the proposition as an alternative is its ability to measure impact. The design process focused heavily on developing clear metrics for measuring levels of affordability in the sector. Policy makers would have a critical role in designing legal and administrative frameworks to support implementation.

It's impact will also be tested in relation to the accuracy of information it generates on market activity. The ability of design proposition to offer credible information and manage data is fundamental to market adoption and it's use by policy makers. If it is to be relied upon, transparency around the use of personal data and data sharing will help ensure the tool is both trusted and accountable to its users.

The case study potentially offers an alternative to models of governance which pitch markets against the state and vice versa. It explores through a design case study how a new role for government in brokering relationships with a range of stakeholders (Streeck & Scmitter 1991) could be played out. It follows Parson's (2005, 492) description of governments which mix delivery systems to support policy implementation (governmental, sectoral, enforcement and values mixes), by providing value through opportunities for innovation and data as a public asset. However, further work is required to understand how an external social impact enterprise can collaboratively provide a regulatory function of government without compromising its role in affording public accountability.

What does this mean for public governance

What we have tried to do in the paper is by no means to argue that a solution like this case study is the only possible means of achieving policy outcomes and social impact. Instead, the design case study helps to illustrate and explore different public policy arrangements and mechanisms to support affordability of rents and quality of accommodation in the context of the PRS.

This paper discusses the role of a disruptive digital service and its application of open data to assist governments to regulate rents and assure quality in the private rented sector. The case provides a digital solution to encourage better practices from landlords, including stimulating small portfolio landlords away from thinking that charging the most in rents is the best way to secure their financial return.

From a design perspective, it demonstrates the contribution of service design to not only reducing barriers to accessibility but more importantly crafting alignments in complex interplays of power and balances of demand and supply.

It is still too early to measure the success of such model. It does however highlight opportunities for both service design and public policy making and practice to learn from each other. In the case of private rented market and rent controls, the design proposition discussed here does demonstrate a potentially effective approach for policy design which tackles the problem from a user/demand centred perspective while at the same time exploring the potentiality of different policy mechanism for effective action.

In bridging approaches which move away from bottom -up and top-down distinctions, it also demonstrates the potential of new approaches to governance, where open data plays a fundamental role in achieving social good. The case suggests alternatives to policy implementation instruments of direct taxation, regulation and subsidy and points to how solutions as these might support more collaborative and diffuse practices in policy delivery.

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Empowering Stakeholders – Simulation Games as a Participatory Method

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Abstract

In cross-disciplinary projects, stakeholders often come with different abilities to express their requirements or negotiate future scenarios. To meet these different abilities, a participatory approach offers a variety of methods that can create a platform for discussions but not always can exclude emerging hierarchies between different stakeholder groups. In this context simulation games represent an interesting alternative to act and discuss in an altered space by providing a playful approach. This paper reports on the development of *Work A Round*, a simulation game designed for the consultancy and planning in the field of multi-located knowledge work and workplace design. It further discusses, how simulation games might be used in a research context as well and whether they might compete with classical qualitative methods.

KEYWORDS: simulation games, participatory methods, architectural planning

Introduction – expanding the Office by involving everyone

The office's meaning as a place, where we execute different tasks throughout a working day has gradually shifted towards a network of many places where work can be done. Starting at the home office, work might continue while commuting on a train, at train stations or airports, places called “third places” (e.g. Ashforth et al. 2000) and finally the company's main office as well. Especially in the knowledge-work sector, the rising number of tools and devices that enable people to work everywhere opened up multiple possibilities to organise daily work for both, companies and workers. Within this network the main office's role is about to change drastically and some of its original spaces might need to be transformed into other typologies of workplace. According to Amstutz et al. (2013, p. 38) the main office

much more needs to facilitate working together as a team by providing key spaces for „formal and informal project collaboration”.

This expansion of the office towards a network of places not only brings a series of new challenges for companies and office workers but also for people involved into the planning and designing of office spaces. More than ever, peoples’ requirements regarding the office play a crucial role in the equipment of these spaces. In addition, the office design processes, as well as the change management of a company’s work strategies ask for new methods in order to meet these requirements. From a research point of view, the question raises which research and planning methods could be adequate to accompany these new procedures in order to gain insights into the change from single located towards multi located knowledge-work. Given the strong relation between personal work strategies of each knowledge worker and the overall corporate culture, these methods should involve both parties by providing a participatory approach.

In the field of workplace design so far, many participatory methods are based upon a series of conducted encounters between different stakeholder groups. When talking about architecture, these encounters, and the discussion of multiple scenarios require a common ground for all participants. Many of the elements discussed need to be abstracted such as by drawings, 3D visualisations, architectural models or 1:1 scale prototypes. Only, that in most cases these models or prototypes come with considerable effort and costs. Consequently, the question rises whether there might be alternative methods to foster the dialogue between different stakeholder parties, especially in the early stage of the process. In a research project on multi located work conducted at the University of Applied Sciences and Arts of Northwestern Switzerland (FHNW) and the Lucerne University of Applied Sciences and Arts (HSLU) for the first time we explored simulation gaming as a participatory platform or “stage” (comp. Vaajakallio, Mattelmäki 2014, p. 64) for different stakeholder groups involved into the office planning and consultancy process. Aim of this *stage* was the discussion of future scenarios regardless of our stakeholders’ knowledge level in multi located work, architecture or their hierarchical background at their company.

Our main expectation was to support our stakeholders in their ability to express personal experiences and needs regarding multi-located work, by giving them a chance to negotiate multiple solutions in a playful context. Based upon these objectives we designed *Work A Round*, a board game exploring the possibilities of getting every day office tasks done at places other than the main office. This paper reports on the reasons why we finally decided to design a simulation game and about our first experiences with the game. Further the paper reaches out to question whether simulation gaming might be a suitable method in a research context as well.

Creating a stage for cooperative learning and empowerment

Within the framework of participatory planning, people’s abilities to express their needs and requirements often are constrained by different factors. Some of these factors might be hierarchical differences between stakeholders, lack of expertise or also the fact that a design process has not introduced any scenarios that are open enough for negotiation (Author, Author, 2015) Eva Brandt and Jörn Messeter (2004, p. 121) stress the importance of scenarios as a “powerful vehicle in designing interaction”. Further they point out the openness of scenarios that help to provoke dialogue and negotiation between stakeholders

by “[...] enhancing their abilities of expressing and negotiating design ideas through a game” (Brandt, Messeter, 2004, p. 121).

Even though in Service Design and other disciplines the game approach might not appear to be novel, in the field of architectural planning simulation gaming is a method that is rather rarely applied. Nevertheless, in the field of workplace design two simulation games have been developed for the sake of involving people into a planning or learning process. The first game to appear is the so called “Workplace Game” developed at the Delft Center for People and Buildings by De Jong and the Bruyne. (De Jong, De Bruyne, 2008; De Bruyne, De Jong 2008; De Jong et al. 2009) The Workplace Game mainly focuses peoples’ behaviour within the spaces provided at the main office and “[...] aims to facilitate group discussions on working behaviours [...] but is not directly aimed at office space designers.” (De Jong, De Bruyne, 2008, p.3) The second simulation game to appear in the field of workplace design is the game discussed in this paper. Other than the Workplace Game, *Work A Round* aims at identifying multi-located work patterns and helping to better match places and tasks that are not necessarily executed in the main office (comp. Eckert, Luppino 2016). The game further aims at gaining insights on two different levels: “Design in the Large (DIL)” and “Design in the Small (DIS)” (Klabbers, 2006) and consequently addresses three main groups of stakeholders (comp. Eckert, Luppino 2016):

- » Design in the Large (DIL): The management of a company, by showing the potential in productivity increase when better understanding flexible work,
- » Design in the Large (DIL): the facility management and office planners by identifying the requirements for future office spaces in the context of multi-located work
- » Design in the Small (DIS): the employees, by teaching them new strategies to better match their work tasks and places and make them ambassadors or “change agents” (Kriz 2003, p. 508) in their own work context.

One reason, we invested into the design of a simulation game was its capability to provoke „cooperative learning” (e.g. Kriz, 2008, p.666) amongst different stakeholder groups. Therefore, the game itself offers no individual goals to the single players in order to limit competitiveness between single players and support the communication amongst them as a team. Instead, we have chosen to relate to Habraken’s concept of a game’s “program” (comp. Habraken, Gross, 1987,1988), which provides common goals of a game in order to provoke negotiation (Habraken, Gross, 1988, p. 144-155), team-based problem solving and cooperative learning (Kriz, 2008, p.666). The *program* also ties better to the real life situation of multi-located work and workplace design, where cross-disciplinary teams work together in order to complete a common task or project. By emphasising the learning aspect, *Work A Round* queues into a genre of simulation games that Hannula et al. (2014) describe as “Knowledge Co-Creation Games”.

Another reason that supported our decision to design a simulation game was the fact that we were looking for ways to encourage our stakeholders to discuss and negotiate different scenarios regardless of their professional or hierarchical background. The empowering of stakeholders is one of four purposes design games should provide according to Vaajakallio and Mattelmäki (2014, p.64) “[They do so by being] hands-on tools for establishing a common language between designers and users and to involve users in discussions on existing and future alternatives. “ (Vaajakallio, Mattelmäki 2014, p. 64). The hands-on experience of a board game and the fact that stakeholders would physically sit and discuss at

the same table became another reason that in our eyes would empower both, our stakeholders and the entire design process as well.

Exploring and debriefing

Physically, *Work A Round* consists of three basic elements: the mainboard representing the network of locations (Fig.1), several sets of cards representing work tasks and events and four pawns representing the four players. The players or groups of players themselves are meant to slip into the roles of four personas (*Ingrid the Boss*, *Harald the Office Worker*, *Tina Team Leader*, *Franz the Satellite*) (Fig.2). Each persona comes with a different work profile concerning their tasks, collaborative skills or the ability to work at different locations. While playing the game, the participants' persona deliberately doesn't need to correspond to their role in real life which is meant to "allow participants to switch between roles and by doing so gain new perceptions" (Vaajakallio, Mattelmäki 2014, p. 68).



Figure 1: The game's mainboard

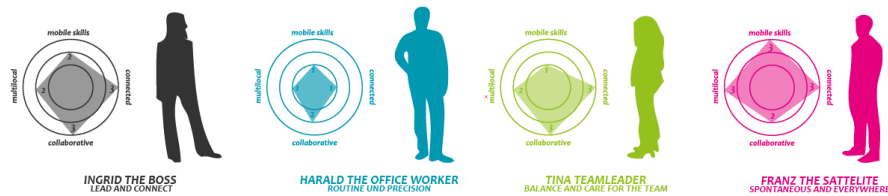


Figure 2: The four personas

As stated above, *Work A Round* doesn't provide any individual goals to the players and is based upon the general program of completing all present tasks together as a group. To achieve the goal there are two general rules that constrain players in their acting: the first one states that each player can change his location once per round and – if possible - complete just one task at this location. The second rule assigns specific profiles to both, tasks and locations. Visualised by a small scale of three dots (Fig.3) players recognise whether a task matches a location or not.

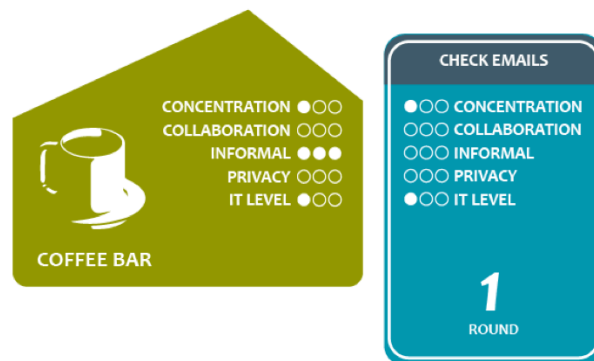


Figure 3: locations and task cards matching together

A common element in simulation games is the presence of a facilitator. Other than the players he holds a twofold mandate as “shaper” and “coach” (comp. Kriz 2008; Wagemann 1999) of the game. By introducing, observing and moderating each round of the game “[His role oscillates] between running the game and letting the participants have control” (Johansson, M. & Linde, P. ; 2005; p. 14). Furthermore, the facilitator is responsible for the debriefing process held twice during the game. The first debriefing takes place after 8 rounds (approx. 45min) and the second one at the end of the game. Both debriefings consist in a series of questions the players are asked by the facilitator to prescind their experiences and strategies from the game and formulate “Abstract Concepts” (comp. Kolb 1984, p. 21 and Kriz & Nöbauer 2002, p.2) which could be transferred to their real work-life. Again, the debriefing procedure relates to the concept of “cooperative learning” (comp. Kolb & Kolb 2009; Kriz, 2008, p.666) and “Knowledge Co-Creation Games” (Hannula et al. 2014).

Discussion – using Simulation Games as a research tool?

First experiences with the simulation game *Work A Round* have shown that the expected outcomes for the participants in terms of engagement, empowering and learning can be obtained by the means of a simulation game. In 2014 and 2015 the game has been tested by 11 different groups with a total of 50 participants. Participants had different backgrounds in workplace design, architectural planning, furniture design, psychology, interior architecture, telecommunication, IT solutions or transportation. However, the game hasn't been introduced into the commercial world yet. During the workshops, participants tuned in very quickly into their roles and after a few rounds a vibrant dialogue would emerge between players. The presence of a facilitator and the debriefing process further clearly supported the cooperative learning process. Teams started to formulate work strategies and discuss the consequences for the future design of their office facilities. Still, after the game's introduction in 2014 there is far too little empirical data to state, whether a simulation game contributes to a better design process. First experiences will be made in our future workshops coming up in 2016. However, the feedback from our participants and partners in the planning and consulting business confirmed the game's potential as a common *stage* for discussions during the planning process and as a new methodological approach in both, the planning and consultancy process for workplace environments.

Another question remains, how well the board game might be applied as a real research tool. The basic idea of using the game as a research method, has been the recording and reviewing of the game's events as also described by Habraken and Gross (1988, p.155). *Recording* the game would provide comparability between different game workshops and groups of participants and gather data that would allow long term observations on how stakeholders behave in a playful context provided by a simulation game.

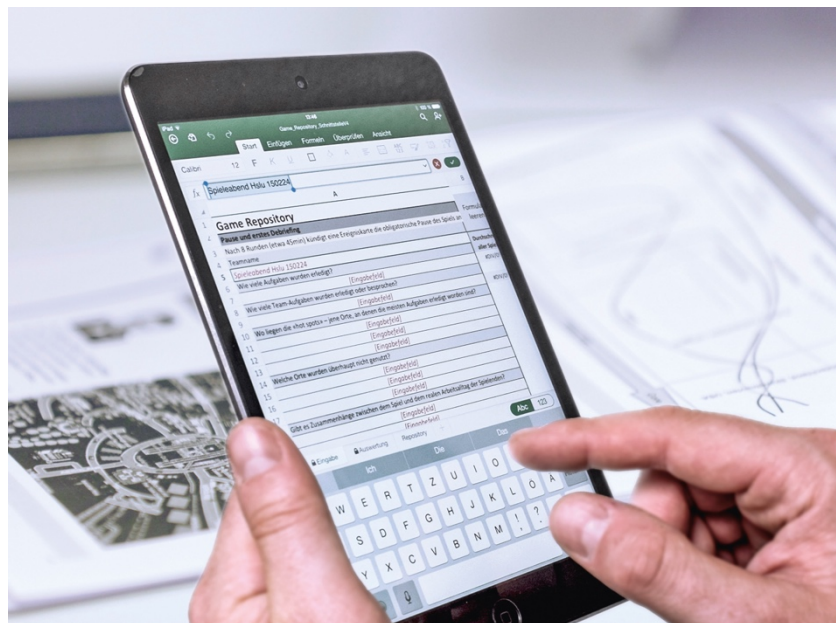


Figure 4: Recording the game with the Game Repository

Similar to Habraken and Gross (1988, p.155), who have been searching for ways of capturing their games' single moves, we also tried to provide a way the facilitator might capture the debriefing process and the game results as well. Whereas Habraken and Gross (1988, p.156) finally decided on a written notation of their games they called "Writing Form" or "WF", we tried to realise a computer supported form of capturing the game (something

Habraken and Gross (1988) have been thinking about too). Together with the board game, an Excel sheet and SharePoint platform have been set up. These two tools allow the facilitator to capture the debriefing process on a tablet PC and feed its results into a central database (Fig. 4). The sheet contains the number and background of the participants, the tasks accomplished until the first debriefing (after 8 rounds), the number of team-tasks accomplished, the locations that have been used and locations that have not been used by the players. During the debriefing all answers and strategies are briefly marked down into the sheet. At the final stage of the game this procedure is repeated and completed by a picture of the final stage represented on the mainboard. This way each record may be used as a benchmark to assess future groups of players.

Up to now, this is a first attempt to gather enough data for research purposes. Our expectations in terms of using the game as a research tool is to get insights into multi-located work strategies established by different groups of players from different companies or by teams within the same company. Further it might allow observations on people's changing strategies before and after the occupation of a new workplace. All these expectations are yet to be confirmed and future application of the game will show how well it might prove itself compared to classical qualitative methods such as surveys or interviews.

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Overlapping research and design phases through participatory strategies

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Abstract

This paper explores the implications, with regard to service design education, of a project in the second semester of the Service Systems Design Master's program at Aalborg University. The learning objective of this project is to develop student capabilities in the design and deployment of service concepts within a systemic environment. Topics introduced as part of the program's curriculum in this semester that contribute to engaging students in this type of thinking include both technical (production systems, IT systems) and social (user participation and social innovation) aspects.

As the case study is discussed, note will be taken of the influence of this educational approach in the design team's choices throughout the project process. Through this exploration, a discussion can be held on the opportunities and challenges presented to students as they attempt to combine the various aspects of a design education focused on systemic thinking.

KEYWORDS: co-design, service design education, prototyping, user participation.

Introduction

This paper discusses the design of a service, with time and contextual constraints that are similar to the inevitable constraints that any designer has to face when dealing with a new design project. In order to address the time constraints any designer has his own strategy that usually has been developed through his own working experience. Design education often offers a way to practice this ability within its curricula, giving high priority to projects that have to be completed within a well defined timeframe. In this case about two months. Such constraints forces the students to define new strategies to research and design at the same time, involving the relevant stakeholders quite early in the process and supporting transformation processes.

The project discussed in this paper was framed into in the broader theme of designing services for smart cities. The smart city concept is based on data optimization - through the deployment of advanced analytics to large amounts of data, city services (and the lives of urban citizens) can be improved (Barbosa et al., 2014). Waste management, water, and social services can all, for example, be theoretically optimized through careful data analysis, and more agile and tailored solutions based on this can be implemented (Greenfield, 2013). The smart city notion also implies a substantial transformation in citizens' data literacy (Deahl, 2014; Pentland, 2013) and in their involvement in the transformation of public services. The idea is that better educated citizens, who are actively involved in the development of the city they live in, can create an environment with improved quality of life (Deahl, 2014; Pentland, 2013).

To narrow down the smart city starting point, the design team focused their efforts on a specific social group: young people aged 15-20. Although they are heavy users of digital services, youth are often unaware of the data they produce – and therefore are vulnerable to those who could leverage this data without their knowledge or consent (Jarvis, 2011). In a scenario in which the use of digital services will only increase this is unacceptable. In addition to this, youth are often neglected in civic inclusion efforts (Hart, 1992). This has democratic implications, and overlooks the youth's ability to contribute with new, unbiased insights (Hart, 1992).

The time available for the project was quite limited. This challenged the design team to find strategies that would support people's involvement, but allow the project progress to remain agile and iterative by overlapping design phases. Decision-making processes should remain efficient, and qualitative data gathered should be concise and relevant. The active participation of the target group in the development of a solution was also a challenge within this project. In an ideal situation, their involvement would require an appropriate ethnographic analysis and adequate time to develop a truly co-designed solution. Working closely with the youth under these constraints resulted in valuable insights into both techniques for facilitating co-creation, and for engaging participants in a co-design process.

The concept

The final concept developed by the design team in this case study is nicknamed *Datacat*. The service would be rolled out in high school classrooms throughout Copenhagen. Students are presented with a module of lectures and coursework on data literacy – specifically, they are taught about the implications of their digital data, as well as the way their urban environment is increasingly being enhanced by data. As part of this, the students are equipped with a free, cloud-enabled app which enables them to partake in civic involvement 'challenges' throughout their area. When they partake in a challenge, they actively give consent to municipal developers to use specified portions of their personal data, according to the project requirements. Such data can be used to understand the way urban areas are currently used, or uncover future visions for urban spaces through the eyes of youth.

A challenge is created when a municipal worker logs into the Datacat backend and posts project information, as well as a request for certain data types. For example, a challenge could be: 'We're going to build a park here! Send us pictures or text telling us what you'd like to see in it'. The challenge is geo-located, so students can see the exact location of the proposed project within the app.

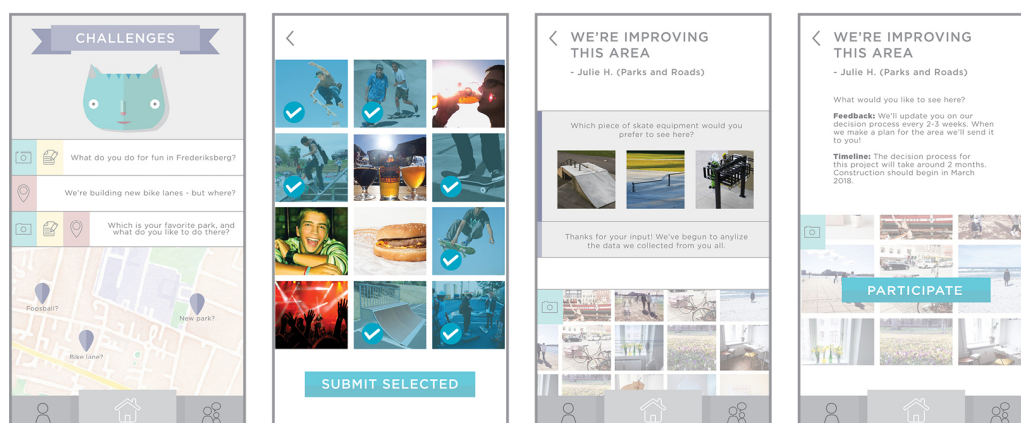


Figure 1 the use of an app allows the city to incorporate not only passive, sensor-driven data in urban optimization, but also the actual experiences of young citizens, who might not otherwise feel engaged in the development of the city.

In the front end of the app, students create an account and link chosen digital services to *Datacat*. Within a secure portion of the app (nicknamed the '*databox*'), students can view the data they create through the use of these services. Through this, they gain an oversight over the data they inadvertently create, and can take steps to control it as necessary. Within the frontend of the *Datacat* app students can also access an overview of municipal challenges in their area. Students can elect to invest portions of their personal data in challenges. In response to the challenge described above, for example, a student might send in a picture of a skateboard ramp they recently instagrammed and the text 'I'd like to see some skateboarding equipment here!' As projects progress, youth are provided with updates on how their data was specifically used.

Participation strategies

The involvement of young people in the design of this service concept was the design team's major challenge.

As a first step, the team contacted Ordrup high school north of Copenhagen, with the aim of getting better insights on youth interaction with data and everyday technology usage. By observing the students and conducting a series of initial, unstructured interviews, the team encountered first-hand the digital immersion modern high-school students experience. Though expected to comfortably use a wide range of digital services, the students are largely left untutored when it came to controlling their digital data. Methods used here were largely ethnographic, with the students filling a passive, subject role.

The design team then moved into more concrete user participation. A group of four enthusiastic and design-minded youths (aged 17 to 19, ie. young adults) were recruited at a local innovation event. The design team facilitated several sessions with this youth team. First, to co-create knowledge, then service concept ideas, and finally to refine the final concept. The meetings were nicknamed *youth cafés*.

The first youth café was intended to gain understanding of the youth perspective of data within a smart city context. This session was facilitated around a printed map of

Copenhagen, which served as a tool to steer the conversation around how localized data is used and created, both in terms of education, private life, and leisure.

It became evident through discussion that the participants used a wide variety of digital services, but hadn't reflected thoroughly on the data-creating implications of this. As the meeting progressed, the design team gained a much clearer picture of the participants' everyday lives, the digital services they use, and the purposes for which they use them. A combination of ethnographic methods (interview techniques and observation) and design strategies (games and storytelling) were used during the session to create a firm foundation for the project.



Figure 2 shows the assembly of a map of Copenhagen, and discussion of localisation data among the youth.

The second youth café was all about co-creating ideas. To facilitate this session, an association game was developed with the aim of generating a large quantity of service concepts in a short amount of time in relation to the design challenge. The game consisted of five rounds of four minutes duration. In each round, participants picked three random cards from three different categories: objects, adjectives, and target users. Various words in relation to smart cities and data had been identified prior to the workshop. Each participant had to come up with as many service concepts as possible, which were then recorded on idea cards. The first few rounds included “funny” keywords such as ‘puppies’, ‘party animals’ and ‘selfies’ to put the participants at ease. A total of 62 ideas were generated and presented throughout this session. There was a good degree of variation between the ideas.

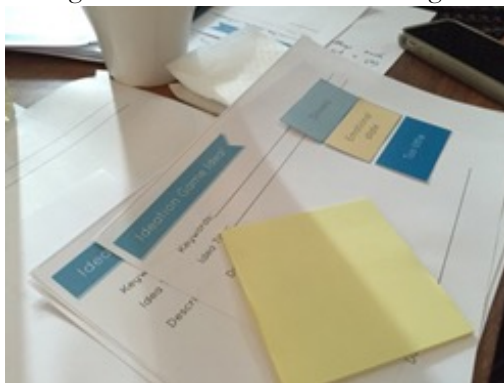


Figure 3 shows the tools for idea generation activity. Word-cards, idea-cards and post-its.

After this second session, the ideas from the workshop were analysed and combined in order to create an initial concept structure.

After concretely defining the concept through discussion, the team went back to Ordrup high school to gather feedback through the deployment of an approximate prototype. The prototype used in this phase consisted of a short lecture presented to the high school class (simulating the initialization of the Datacat service, during which the teacher introduces the service to the students within a classroom) and a small-scale, non-digital

Challenge.

The lecture consisted of a 15 minutes presentation and moderated discussion, aimed at finding out the youths' level of knowledge and willingness to engage in discussion on the topic of data creation and use. The challenge prototype consisting of a printed, four-page booklet was divided into sections, each representing a data type that will likely be used in Datacat - text input, location data, or images. The students were asked to create data in response to the challenge: ‘how can we improve your school together?’

The participants took the prototyping session seriously, and produced very detailed data booklets. The way they described issues and improvements for their school very visually, and engaged actively in discussion, led us to believe that they enjoyed the process of describing their thoughts. Notably expressed the need to have specific channels for certain content.

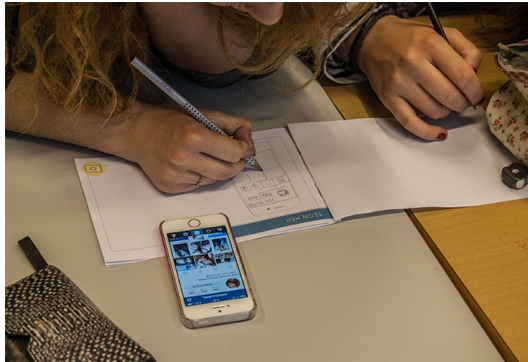


Figure 4 shows the high school students at ordrup high school reflect on instagram-usage during their school day.

For example, one participant mentioned that although she may want to bring a broken bathroom to the school's attention, she would not want to post that kind of content in her personal social networks. Datacat could provide a channel to meet this need. The results of this session were therefore considered by the design team to be a basic proof of concept.

The final step in the user participation process was a final youth café. The purpose of this meeting was to gather feedback on the design concept from the youth

participants, as well as to evaluate the participation process overall from their perspective.

This last workshop consisted of two parts: a tomorrow headlines exercise in pairs for 15 minutes (Service Design Tools, 2015), where the youth had to fill in a front-page 'newspaper' in which the design team had already included guiding elements such as pictures and headlines; and a service walk-through, where the designers took the youth participants through the service concept by playing out a scenario in a board game-like setting (Stickdorn & Schneider, 2011, p.11). Both exercises were planned to discuss the service concept and its future implications. Having tangible references to elements of the service made the concept more approachable and easier to refer to.



Figure 5 shows the "tomorrow's newspaper" activity from the last workshop.



Figure 6 shows the game-like simulation of the service with laser-cut prototypes.

Feedback from the youth participants was largely positive. They had felt a strong sense of ownership over the project and its progress, and could clearly see their contributions in the final concept.

Discussion

This case suggests a way to touch upon the three main areas of practice and investigation in service design, as suggested by Sangiorgi (2009): service interaction, system complexity and transformative aspects.

The design team worked on how to negotiate the quality of the service interaction with the students. Simultaneously, the team addressed the systemic aspects of a service dealing with data management, by referring its complexity to a specific target group. Young people produce a vast quantity of data, data which could prove a valuable resource in the development of innovative urban improvement initiatives. This, however, requires that young people be conscious and well informed of their role and the opportunities they can take advantage of to drive the process and control the data they are providing. Due to the positive feedback we received from the high school students, we are confident that Datacat could help with this in the long run.

It is significant that this case has been developed within the framework of a design education. The team of students used specific knowledge from several curricular modules, namely: *User Participation and Social Innovation*, aimed at providing tools to support participatory processes; *Designing the Experience*, which focused on the use of prototypes (material prototypes or video sketches); and *Distributed Systems*, focusing on technical requirements for designing a cloud-based service system.

This knowledge was used to devise a strategy to handle the time and resource limitations that are typical of design projects in real settings. Typically, service design educations separate ethnographic analysis (the ‘research’ phase) and co-design processes (the ‘design’ phase). In this case, the design team worked on strategies to *overlap* research and design phases. By using methods borrowed from both processes in combination, the team was able to compress what is usually a very time-intensive process (user participation) into a three-month project duration.

Prototypes were, at certain times during the project progress, used to assist in this, and it is worth noting that prototypes were not only used to test users’ experiences of the proposed service, but also to *place* the service as part of the school activity. A capacity was therefore built to support the service and reveal opportunities, dilemmas (Hillgren, Seravalli et al. 2011) and critical views on the issue of data management.

Conclusions

Design education often frames design processes into phases, modules and schemes. This is generally for good reasons: such an apparently rigid separation is often needed to stress critical aspects in design processes that would otherwise not be evident. The challenge, however, for the students is to use any possible opportunity to find the most appropriate toolbox to deal with complex projects and sensitive themes. This often involves combining methods from various design phases, as it is only through these agile, hybrid methods that complex processes can be adapted to the tight time and resource constraints typical for students.

The projects proposed in design educations are a good opportunity for students to cultivate personal design strategies, strategies that bridge different design phases, address the needs of

different stakeholders and put the designer in the role of supporting transformation processes. The case illustrated in this paper is an example of how this opportunity can be seized.

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Negotiating matters - supporting agonistic pluralism in community planning

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Abstract

There is no goal for public consultation in community planning, there are several conflicting ones, using Chantal Mouffes model of democracy to acknowledge the conflictual nature of democratic politics, not striving for consensus but agonistic pluralism. Our work builds on experience from co-design workshops we held in Upplands Väsby concerning a conflict between politicians, civil servants and citizens. Seeing the workshop as a space of agonism, an arena for different positions to meet and negotiate, we as designers work with form and material to support the different interests. We suggest three categories to consider when crafting this agonistic space; perspectives, format and material. Acknowledging the complexity of planning, no longer striving for consensus but to keep the negotiation alive, is a starting-point for understanding the different conflicting interests and together create ways of working well with wickedness through making more sensible judgements.

KEYWORDS: negotiation, matter, agonistic pluralism, co-design, public consultation

Background

The public consultation is demanded by law in planning processes and aim to obtain as good decision making foundation as possible and to provide the opportunity for insight and influence according to Boverkets webpage. The law for planning and building, PBL, was accepted in 1987 and aim to democratize the planning process, to strengthen the influence of the citizens and to move the decision making closer to the local residents (Tahvilzadeh et al., 2015). Rittel and Webber (1973) states that planning problems are inherently wicked i.e. vicious, tricky and aggressive, filled with political and material ambivalences. John Law (2014) argues that acknowledging the world as generally wicked is a reason not to focus on the wickedness, but to attend to the imperfect techniques for rendering its problems temporarily benign. For Law (2014) this implies holding together a series of opposites and suggests tactical and responsive strategies of situated interference.

Chantal Mouffe (2000) argues for a model of democracy in terms of “agonistic pluralism” to acknowledge the conflictual nature of democratic politics. She uses the concept of hegemony to explain this conflictual nature, how the dominant hegemony always exclude alternatives

that could be actualized through counter-hegemonic practices that aim to establish another form of hegemony. Agonism means seeing this struggle as not between enemies but adversaries who recognizes the legitimacy of the demands of their opponent, as a form of conflictual consensus. She emphasizes the need to keep the democratic contestation alive, to not erase the tension between liberalism and democracy but to make room for dissent and the institutions that this can be manifested through (Mouffe, 2013).

Carl DiSalvo (2010) criticizes design engaged with democracy for accepting democracy as a matter of pursuing consensus by not questioning the given structures of politics. He uses Mouffe's distinction between politics and the political to critique that too many design projects works with design for politics, with improving mechanisms that enable governing, but are not political in an agonistic sense. DiSalvo means that political design does the work of agonism, creating spaces of contest through revealing and confronting power relations. Political design according to DiSalvo articulates the elements that are constitutive of social conditions, identifying new terms and themes for contestation and action. He argues that design only focused on politics diverts potential attention away from the political by not engaging in the contestation necessary for democracy (DiSalvo, 2010).

Decode and co-design workshops in Upplands Väsby

Decode is an on-going research project within the framework of Sweden's innovation agency Vinnova's call for challenge-driven innovation for sustainable cities. One of the approaches used is co-design, which can be seen as joint inquiry and imagination (Steen 2014, Sanders, 2012). The project's starting point is that collaboration with the public based on their different perspectives on social, environmental and cultural questions could help to better meet the complex challenges of sustainable urban development. To develop these different forms of collaborations the project is based on both artistic and scientific grounds through an interdisciplinary team with backgrounds in architecture, design, art, sociology, practical philosophy, economy and organization theory. Within the project we also collaborate with SGBC, Sweden Green Building Council, Upplands Väsby and Varberg.

This paper will focus on the co-design part of the project exploring and working with public consultation. With a co-design approach we focus on how to share different perspectives, respectfully negotiating the different standpoints, to co-create knowledge. In this paper we will focus on the first phase of our co-design explorations in Upplands Väsby.

We initiated the workshops in Upplands Väsby to get a sense of an already existing conflict, the planning of two roads and a "shared space" between apartment buildings in a traffic segregated area. Before the workshops we informally interviewed civil servants working with the planning and citizens living in the area, attended meetings where residents were protesting and looked at the detailed development plan amongst other things.

The workshops were announced in the local newspaper "Vi i Väsby" twice, on the municipalities' Facebook page and was put up in the blue apartment buildings by a resident of one of the blue houses who also added a commentary note to the invitation. We had about twenty participants at each workshop, one half citizens, mainly residents of the blue apartment buildings, and the other half consisted of politicians from different parties, civil servants with different competencies such as traffic planning, project leading, landscape architecture etc.

We divided the participants into two smaller groups of ten. First the participants were given activity sheets where they were encouraged to describe an activity they had done in the area recently as well as a imagined desired activity. When this was done we presented a printed, one square-meter big, aerial-photo of the area in question where we as facilitators mapped out the activities with coloured tape and pre-printed sketched symbols of activities. The different activities of the participants were presented and mapped on the aerial-photo one person at a time starting with the recent activities of the residents. The participants then had a short coffee break while we placed out half transparent sheets with drawings of the planned buildings and roads on top of the mapped activities.

Citizen A *And these are the roads that we are protesting against because we think it's better to drive around this area.*

Citizen B *But why do we need so many roads?*

Citizen C *Yes, that's what we're also wondering...*

Civil servant D *This discussion is bound to happen, should we have it now, or do you want?*

Researcher E *Either way.*

Citizen C *Whatever suits...*

Citizen B *Who's idea was this? (referring to the roads)*

Citizen F *Who's idea it was doesn't matter, but the goal with this is to explain to me why we need so many roads?*

Civil servant A *I can start by explaining from a community planning perspective ...*

Citizen B *Eehm, could there be any other solution for safety, for the people living in the area, people with walkers and all, without being reactionary, but to find another solution for safety than roads, that's the core of the issue for me personally.*

Civil servant A *I don't think, I am not here to convince you but in some way we should agree on what we disagree on.*

Politician G *The reason why we have public consultation and audits are to get perspectives and to see how we can do things in a better way and how we can make things in a way that all, all feel that they can accept and feel "ok, this could work, this will probably be pretty good".*

(Author's translation of transcript from discussion during workshop in Upplands Väsby)

The participants then presented and mapped their second desired activity considering the new buildings and roads. The participants were encouraged to one at a time map out areas of conflict on transparent paper to put on top of the map and to discuss why. As a final task they together proposed what activities the planning of the space should support on a new transparent sheet.

Negotiating matters

We had two main aims with the workshops; to better understand the current conflict and to propose ways of working with negotiating different interests. To understand the conflict we invited people with different interests to together make sense of the reasons, structure and scope of the conflict. To propose ways of working supporting negotiation of the conflicting interests we considered the perspectives, material and format present at the workshop in relation to the conflict and power dynamics. Not only designing for governance as critiqued by DiSalvo, we wanted to consider the opinions of citizens, civil servants and politicians to be of equal legitimacy and importance. We used Chantal Mouffe's critical view on democracy and her concept of agonistic space, not to strive for consensus but to make room for critique and to get a better chance at understanding the different perspectives as well as the matters of conflict. This way of working can be seen as a responsive strategy of situated interference i.e. a strategy for working well with wickedness (Law 2014).

Considering the workshop as agonistic space means that we provide an arena for different positions to meet and negotiate, not as enemies but as adversaries. To meet as adversaries means to acknowledge the legitimacy of your opponents argument even when not agreeing. Mouffe (2000) argues there can be no consensus without exclusion. Instead of suppressing the current conflict in a strive for consensus, we should engage the participants as active subjects, keeping the negotiation alive! We can arrive at a compromise but this should be seen as "temporary respites in an ongoing confrontation" (Mouffe, 2000). Creating space for criticality, not aiming for all to agree upon one set solution, we can start to better understand the different interests.

Perspectives, material and format

Being a designer I work with formgiving. In this context however, what is of importance is not only shaped through object and material, but focus is on the situation and how it can be formed responsibly. When designing this space for negotiation and critique I want to suggest three categories to consider; perspectives, material and format. What and who are invited and what we bring are part of setting the framework of the workshop. The perspectives present are different ideas and competencies present through people and material.

Important perspectives for setting up an agonistic space for this particular conflict were representatives from different parties, the chair of the city council, civil servants that were part of the planning, citizens that were residents in the area and the planning documents for the roads. Having the different conflicting aims and agendas present made the plans possible to negotiate.

The material was based on the planning documents but also supported the materialization of other perspectives. As the citizens mapped out their activities on the map before the other participants, this was then already present when we layered on the planned roads and buildings. This created a form of material evidence and reference of this agonistic space through layering and overlapping the different desired activities. This material evidence, used as a point of reference, then prompted discussions and negotiations among the participants.

Important aspects of the format were small mixed groups, turn taking and a clear division between individual and common activities. The workshop was structured so that everybody first worked with their own activities and then presented these on the common table. This is

important since it puts a value on each participant's contribution, striving for agonistic pluralism rather than consensus. Having a moment for everyone to formulate their thoughts and then taking turns presenting their activities made everyone participate and listen to each other, letting different perspectives be presented and negotiated. The small mixed group let us be flexible so that questions could be raised as the material was presented and the mix meant that there were often several different responses.

Discussion

To work in this way, articulating and sensing the situation simultaneously as negotiating it, is dependent on the perspectives present. Being present and meeting creates an engagement but also comes with limitations such as number of participants, organisation of the event, possibilities to travel and sensitivity to group dynamics. As designers we are part of setting the framework for the negotiation through the material, format and perspectives we invite. Seeing the designer not as designing for politics, enabling governing, but political, as argued by DiSalvo (2010), puts focus on what perspectives and values we as designers make present and absent. Kristina Lindström and Åsa Ståhl (2014) write about how the invitation frames the expectations for the gathering, what issues that are dealt with, who will take part and how. They argue for co-articulating not only solutions but also issues. What we see as important to consider for the upcoming workshops are the presence and absence of different perspectives when working on forms for inviting and negotiating the framing of issues together.

The material in the workshop makes it possible to explore and understand the situation in other ways. Another crucial part to look into is what happens after the workshop, how the understanding travels. Not being able to share the experience of the workshop, the material has a potential role as reference when arguing for decisions based on the embodied experience of being part of the workshop negotiating different interests.

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Learning together by doing together building local government design capacity through collaboration with design education

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Abstract

It is widely understood that the public sector in general and public services in particular must be radically reshaped in order to meet the needs of citizens in the context of diminishing public financing. Less well understood are the ways and means by which to do so, although most now accept that design practices and processes have a significant contribution to make. But how are we to develop and build design capacity within local government at a time of austerity? This paper introduces a one-year project that explores the potential for, and value of, strategic collaboration between design education and local government to better engage council staff, and the citizens they serve, in the development and application of design-led approaches to social and service challenges and to inform policy. The project prototypes a 'Public Collaboration Lab' (PCL), a place for collaboration, experimentation and experiential learning that brings together local government officers, design researchers and design students with front line council staff and service users to explore new ways of working to develop and deliver policy and services that may improve outcomes for citizens whilst reducing public spending.

KEYWORDS: collaboration, local government, design education, experiential learning, action research

Introduction

In the face of current and intensifying financial austerity within local government those responsible for the quality and continuity of public services recognise that innovation in service design and delivery is critical. The UK Local Government Association (LGA) commissioned report on *Whole Place Community Budgets* (Ernst & Young, 2013) suggests massive financial savings could be achieved by a collaborative approach to service delivery that aligns different agencies' objectives, activities and resources. Current research and

practice in design (Manzini & Staszowski, 2013) suggests that greater involvement of, and collaboration with, citizens also fosters improvements in service quality and efficiency in two ways: i) a *people-centred* service approach involving end-users in research, prototyping and testing of services (particularly those with complex needs and therefore multiple service requirements) can help to identify synergies across ‘service silos’ that may inform integrated approaches to service delivery and; ii) *people-led* services that engage citizens and other agencies in co-production processes to *design and deliver* their own services, enabled and supported by public agencies.

These ‘public and collaborative’ approaches to service delivery (services delivered with and by citizens and other agencies) seek to mobilise citizens as ‘active collaborative people’ rather than ‘passive individual people’, ‘service participants’ rather than ‘service users’ and recognise citizens as both ‘people with needs’ and ‘people as assets in meeting their own and each other’s needs’. However, despite the growing interest in these approaches, and the role of collaborative design activities in delivering them in public sector contexts, there is also an acknowledged gap in understanding design’s contribution in such scenarios (Junginger, 2014).

Public places for social and service innovation

For over a decade the design community has understood that ‘designers are having to evolve from [solely] being the individual authors of objects or buildings, to being the facilitators of change among large groups of people’ (Thackara, 2005). In 2006, Cottam et al. expounded a ‘transformation design’ approach at the intersection of service design and design for social innovation that is ‘unique in the complex problem solving space’ and ‘has been informed by an evolution in design practice... including the ambition to proactively transform systems and organisations’ (Cottam et al., 2006). For Cook (2011), the emergence at the beginning of 2000 of UK design practices operating within the public sector and realms of social change is linked to New Labour policies that focused on public engagement and user-centred public service reform (House of Commons Public Administration Select Committee, 2005). Concurrently, The Design Council’s Red team was set up as a response to this vision of public services being redesigned around the user (Cook, 2011).

The contribution of ‘design thinking’ and design practice to sense-making and problem solving in the face of complex challenges via humanising, visualising and synthesising is widely acknowledged (Brown, 2008; Cross, 2011; Kimbell, 2011, 2012). The Design Commission (2013) reported ‘in 2012, Ipsos Mori found that public sector leaders thought that ‘redesigning services to meet users’ needs in a different way’ was most likely to lead to significant improvements’. Also, that ‘the public sector would achieve a step-change in quality and effectiveness by more assertively embracing design practice’.

Increased austerity has highlighted further still the need for bringing design-led social innovation to bear on public policy and public services.

In response, government agencies in the UK and overseas have established what Nesta refers to as ‘i-teams’ (Puttick et al., 2014): ‘structures, capabilities and space needed to allow innovation to happen... drawing on the disciplines of design and user engagement, open innovation and cross- sector collaboration, and mobilising data and insights in new ways’. These ‘i-teams’ ‘create solutions to solve specific challenges, engage citizens, non-profits and businesses to find new ideas, transform the processes, skills and culture of government and

achieve wider policy and systems change'. Responses from design educators have included those of researchers and practitioners within the Design for Social Innovation and Sustainability (DESIS) network's 'Public and Collaborative' research cluster (2013) who have documented, and in some cases contributed to (Parsons DESIS Lab/Public Policy Lab, Malmo Living Lab), what they refer to as 'Public Innovation Places' or 'PIPs' described as; "authorising environments' that foster experiments. They may have different names (Living Lab, Change Lab, Gov Lab, etc.), but they share common characteristics; such spaces can bring together a variety of actors, both public and private, with a diverse array of skill sets and expertise around a set of issues, to which they could innovate in a safe space free from many of the constraints of partner-specific mandates, policy issues, and procedural restrictions'.

Research into 'i-teams' and 'PIPs' is in its infancy and is currently limited to mapping their locations, configurations, funding, scale, thematic approaches, as well as case studies and recommendations for effective implementation. However, case studies, methods and tools are not sufficient to transfer solutions across operational contexts. For these approaches to achieve their full impact there is a need to understand the necessary conditions and infrastructures that might deliver the highest impact in a given context. Armstrong et al. (2014) highlight the current lack of detailed, critical research into these infrastructures, noting the difficulties they pose as a research subject, but suggest that 'these difficulties can be addressed by careful research design'. The current project represents just such a research design. Whilst tailored to the context of operation of the research partners, it provides a unique opportunity to explore the workings of such a collaborative environment, and has the potential to be an international exemplar in the field.

Design education/local government collaboration

Recent reports from both the UK's Arts and Humanities Research Council (Armstrong et al., 2014) and the Design Commission (2013) recommend 'HEIs and public sector organisations explore possibilities of further research and knowledge transfer work' using design-based methods. In response to this call University of the Arts London and London Borough of Camden have partnered in the creation of a programme of collaborative activities that will:

- Undertake demonstrator service and policy innovation projects as a series of 'experiments' within a specially created 'Public Collaboration Lab' (PCL) to redesign public services through the application of collaborative design-led approaches.
- Increase understanding of Higher Education (HE) design institutions' role in supporting innovation practices within local government through design-led action learning.
- Explore the potential for co-design to democratise public service reform and improve public outcomes.
- Co-design evaluative frameworks for assessing the role and impact of design in local government service reform.
- Propose means by which the pilot study could be scaled up and scaled out within other contexts.

The current project builds on previous collaborations between University of the Arts London and London Borough of Camden. In 2011, the University collaborated with the Borough and citizens in a local action research activity. The research revealed the need for greater knowledge exchange between the diverse actors involved and a common framework

to structure collaboration. The collaborative, design-led action research resulted in a number of service blueprints which were rarely implemented, in part due to a lack of ownership of service concepts either by engaged citizens, or by the Council, or both, suggesting greater strategic involvement of the Council was required (Thorpe & Gamman, 2013). In 2013, a prototype was created to test the potential for more strategic collaboration. A one-day workshop brought together 100+ diverse actors including academics, community groups, heads of service and project managers from Camden Council and other local authorities. It resulted in an increased understanding and acknowledgement of the potential of design education/local government collaboration in social and service innovation learning and practice. The current project builds on this experience establishing a collaborative 'Public Innovation Place' anchored around a strategic partnership between HE and local government. The initiative has become of increasing significance to Camden in light of imminent funding cuts and is pioneering both in establishing the Public Collaboration Lab model and in assessing its efficacy.

By 2017, funding to Camden from central government will be cut by 50%. Public service delivery cannot continue on a 'business as usual' basis. Consequently, the Council is leading public consultation and reflection around the re-design and delivery of their public services. The Council has identified several challenges linked to specific public services including exploring alternative delivery models for the Home Library Service (HLS), and a range of other services linked to Adult Social Care. Cross-cutting challenges include the need to extend digital service delivery and support citizens to be more digitally confident and enabled to make use of online services, finding opportunities to integrate volunteering into service delivery and seeking opportunities for 'cross silo' service integration. This proposal addresses both specific (library services) and cross-cutting aims. The focus on the HLS, whilst apparently modest in its scope, allows for exploration of processes, experiences and changes to outcomes using this collaborative service design project-based learning approach and responds to the UK Public Service Transformation Network's Service Transformation Challenge Panel (2014) call for 'a new person-centred approach to help specific groups and individuals with multiple complex needs'.

Methodology

This research project is multi-layered applying Lewin's (1948) Action Research that values 'the development of reflective thought, discussion, decision and action by ordinary people participating in collective research on private troubles (Wright Mills, 1959 in Adelman, 1993). The 12-month research project applies a diverse range of 'open' collaborative, iterative and 'agile' (Beck et al., 2001) approaches to tackle the context of local government that is complex, networked and frequently agonistic in nature.

This open and collaborative approach allows a diversity of disciplinary methods, skills and expertise to be brought to bear on a variety of local government challenges. Within this process, design practices and 'design thinking', introduce an abductive approach to sense-making and problem solving. Design practices applied include ethnographic research methods that support empathic understanding and help recognise the diverse needs and agendas of different people, visualisation of information and concepts, and iterative prototyping of possible solutions that help understanding and collaboration across different groups. The Public Collaboration Lab applies these methods working with service providers, service users (or proxies) and other agencies to co-define users' needs and co-develop service

prototypes, as well as a way of working; a 'lab' model to be tested and evaluated for efficacy and impact. The team is synthesising and documenting insights and learning to share with people inside and outside HE and local government.

The research is delivered across three streams 'Person Centred Service Experiments', 'PCL Prototyping' and 'Evaluation'. Between them they; i) map and explore precedent activities in this area to understand and articulate the different types of collaborative working between design education and local government; ii) deliver contextually specific collaborative 'experiments' – projects that seek to demonstrate the potential for different kinds of collaboration between design education and local government; iii) interrogate and evaluate these collaborations to understand their impact and outcomes from the diverse perspectives of the stakeholders involved (HE professionals and students, local government officials and service providers, and citizens). The work is being delivered in 'sprints' of various durations, from 4 weeks to 6 months. At the end of each 'sprint' progress is reviewed by a trans-organisational and multi-disciplinary group that agrees priorities for the activities to follow. At key stages in the project Open Knowledge Sharing Workshops share insights and findings with people and agencies inside and outside the project, increasing opportunities for knowledge exchange and impact. Finally, in addition to the evaluation of each sprint, the PCL itself is evaluated as a platform for promoting and enabling collaborative design projects, aiming to understand the experiences, values and outcomes of all those involved.

Discussion

This recently initiated and on-going research presents emerging findings for discussion, including;

- A mapping of the UK landscape for collaborations of this nature, including a framework for collation and comparison of these activities;
- Examples of 'experiments' conducted to date exploring the contribution of design and design methods to diverse operational contexts of local government - including public consultation and engagement around changes to library services and the collaborative and speculative redesign of a Home Library Service.
- A review of these activities, describing the working practices, impacts and outputs of the Public Collaboration Lab and the diverse motivations, goals, values, experiences and outcomes of the stakeholders involved.

We will share these processes, experiences and outcomes across the Lab and draw lessons for future collaborative design projects of this kind.

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Service ecology: design issues for hospital infection prevention and control training

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Abstract

Training in appropriate infection prevention and control (IPC) measures is crucial in minimising the incidence of hospital-associated infections (HAIs), a growing cause of patient illness and death in hospital. This paper describes the co-development of visualisation tools intended to form part of a digital tablet-based training package for hospital-based staff across a number of roles. It argues that, in a typically hierarchical organisation, taking a cross-cohort approach to developing tools to raise awareness and understanding of IPC and HAIs recognises the complex service ecology of behaviours, relationships, the environment and the organization, and introduces a democratic, open innovation approach to developing IPC training materials.

KEYWORDS: infection prevention and control, in-service training, visualisation tools

Introduction

Staff training is an essential aspect of the development of competence and safe practice in the UK's National Health Service (NHS). One crucial area of training for staff across the hospital setting is in infection prevention and control (IPC) to reduce the incidence of hospital associated infections (HAIs). This is a particularly pertinent issue given the rise in antimicrobial resistance (AMR) recognised as one of the most important global issues for human and animal health due to the increasing numbers of resistant infections leading to many existing antimicrobials becoming less effective. This is accompanied by a lack of significant commercial innovation in antimicrobials. While the development of new antimicrobials is an urgent priority, it requires substantial investment and a long-term strategy. The authors describe a complementary approach to tackling HAI through IPC, one which can be progressed and implemented in the shorter term, concerned with the development of visual tools for in-service IPC training for hospital staff.

Current approaches to IPC training

Current staff training practice for IPC varies across NHS boards and regions in the UK. For instance, in one Scottish region staff receive, as part of their induction package, a mandatory annual hand hygiene e-learning course and a three yearly mandatory Standard Infection Control Precautions (SICPs) e-learning course - supported by a workplace content management system (WCMS), and then receive further sessions as and when required. Staff are also directed to online courses supplied by NHS Education for Scotland (NES), such as the Scottish Cleanliness Champions programme which has been influential in advocating an 'all-workforce' approach to educating for good IPC practice (West et al., 2006; Macduff et al., 2009). These online courses represent the national standard. The content of the WCMS modules is essentially text-based information supplemented by visual diagrams and photos, occasionally inviting some interaction. The issue here for the user is how one is guided or elects to navigate through the considerable content. For the health board one issue is in determining the link between the content, an effective means of awareness-raising and learning, and a desired outcome, in this case a reduction in HAIs. Another approach to ICP training is in the form of digital tablet-based training packages. One of the UK's largest suppliers of hospital cleaning products, including wipes and disinfectants containing biocides, provides these to approximately 200 UK hospitals. These include training videos demonstrating evidence-based procedures of how to clean, e.g., hospital ward surfaces using their cleaning products. They also provide incentives to evaluate one's learning through, e.g., interactive games mimicking the video-illustrated cleaning procedures, albeit limited to the surface of the tablet. However, in both the above types of training resource, there are limitations to what can be achieved from self-learning by rote: on the job one has to recall correct procedures perhaps without having an adequate understanding of the nature of the pathogens likely to be present or the consequences of certain protocols not being observed.

Co-developing tools for training: visualising the invisible

In attempting to address the HAI issue, the authors have described findings from a previous programme of research exploring the use of prototype visual methods to help 'see' invisible pathogens in the hospital setting (Macduff et al., 2013) a key outcome of which was the recommendation that the further development of these prototypes for staff training would be beneficial if the visualisations could be augmented with specific training information and scenarios centred around the prevention of HAIs. Loudon et al. (2015), in work being driven by the question '*could more HAIs be prevented if hospital staff could 'see' microscopic pathogens?*', outline the model and methods being used for this - visionOn - study which deploys a co-development approach, utilising data on staff behaviour, e.g., '*who touches what?*', and on the location, abundance and persistence of different pathogens as a result of, e.g., transmission by various means (human and environmental) or as a consequence of cleaning regimens intended to eliminate or mitigate pathogen growth. Using a workshop-based approach, prototype visuals were used to interrogate understanding and awareness across four different hospital staff cohort groups: doctors, nurses, cleaners (domestics) and other - mixed - roles. These prototypes were iteratively developed through three main stages: by the second stage these were interactive tablet-based prototypes designed to raise awareness and understanding of location of pathogens, their survival properties, cleaning and surface recontamination, and their spread and transmission. Further refinement and evaluation enabled their embodiment into a prototype digital tablet-based training package for hospital staff for evaluation by the NHS and the industry partner.

From hierarchy to co-dependency

Clearly differentiated roles within the hospital organization create a hierarchy across the different cohort groups (nurses, doctors, domestic cleaners and visitors): these individuals form a complex service ecosystem (Morelli & Tollestrup, 2007) of interaction and potential transmission of HAIs as they move into, through and around the various spaces and artefacts within the hospital environment as they perform their individual but overlapping roles. Here, there is significant co-dependency: individuals within all cohorts require to observe IPC protocols within the hospital 'ecosystem'. Domestics have their vital role, cleaning certain areas of the ward environment, e.g., floors and toilets, without necessarily having a clear understanding of the specific natures of different pathogens. Nursing staff may be regarded as carrying the most conspicuous burden of IPC through cleaning routines concerning the patient and on various surfaces within the ward environment particularly in and around the patient bedside. Junior doctors are required to handle patient notes as well as examine the patient and may have, e.g., an erroneous perception that not touching the patient diminishes the opportunities for infection transmission. Visitors are another rogue element to consider while the patients are also unwitting sources - as well as reluctant recipients of - infection. In this service ecosystem there is a substantial co-dependency between all individuals: just one transgressor creates serious ramifications for others, most seriously for the patient.

Recognising different learning needs

A significant training challenge within IPC is one of addressing phenomena which are fundamentally invisible, i.e., the occurrence of different kinds of pathogens, each with their 'preferred' locations, abundance and persistence as well as their complex routes of transmission. Consider, then, the differing training needs of the different cohort groups named above. Cleaning staff may not be used to the norms of 'educational' materials such as those found in the online e-learning modules described above, some indeed may have problems with literacy. Nursing staff have, as do junior doctors, a relentless schedule of individual tasks to conduct for each of their patients requiring any new routines to be embodied, along with countless others, in everyday practices and procedures. Visitors are part of the 'world outside' bringing with them unschooled behaviours and unpredictable reservoirs of pathogens. Each of these groups, it could be argued, requires to 'see' and understand the issues in their own particular way.

Cross-cohort training as a service design issue

So what's the relevance of the above for Service Design? Current e-learning materials are largely reliant on text-based or text-derived documents and rote video-based protocols and may not provide the appropriate formats for each and all of the above cohorts. One issue arising in team discussion about the nature of the visualisation tools during their development was if these, and the training package embodying these, should be tailored for each of the separate cohorts. While there may perhaps be an argument for this, such an approach might reinforce a hierarchical as distinct from a co-dependency model. Findings from the first cohort workshop (with doctors, nurses and cleaners) suggested that the same visualisation materials were an effective medium with which to engage all these different

staff, collectively and simultaneously, with the information, helping raise awareness and understanding of specific issues relating to pathogens and IPC. A second workshop was able to refine this view determining that supplementary content might require to be added, tailored to each cohort. However, the visualisation approach enabled communication of key information from normally difficult-to-access research data across the different cohorts, demonstrating its potential to assist in learning new information or reinforcing current knowledge. This 'one-tool-fits-all' visualisation approach provides the opportunity for exploring cross-cohort training, further strengthening the co-dependency model and better reflecting the dynamic service ecology.

Synthesised narratives, embodied data & democratic discourse

Macdonald (in press) argues for the early introduction of visualization prototypes to visualise, probe, elicit, explore and test, arguing can result in specific kinds of service innovation. The visionOn prototypes represent a synthesis of narratives - gleaned from all cohorts and from additional expertise such as that from microbiologists - of experiences, of procedures, of data, contextualised within a ward setting. Using the iterative co-development and workshop-based process, each of the different cohorts attending the workshops has input to the design of the visualization tools while simultaneously witnessing others' responses to the same materials. This iterative and discursive process continually probes and hypothesizes '*what if...?*' in an attempt to better reflect the discourse that needs to be promoted about the dynamic relationships between all actors (human and non-human) in this hospital service ecosystem and their individual agencies, i.e. individuals, pathogens and their lifecycles, and the environment. In this 'open innovation' approach (Chesbrough, 2003), the process of co-developing these visual training tools reflects a collective construction process, disregarding the normal hierarchical and authoritative healthcare structures, generating a political effect through enabling a more democratic form of discourse: a cleaner's input and views in shaping these tools is as vital as a consultant's.

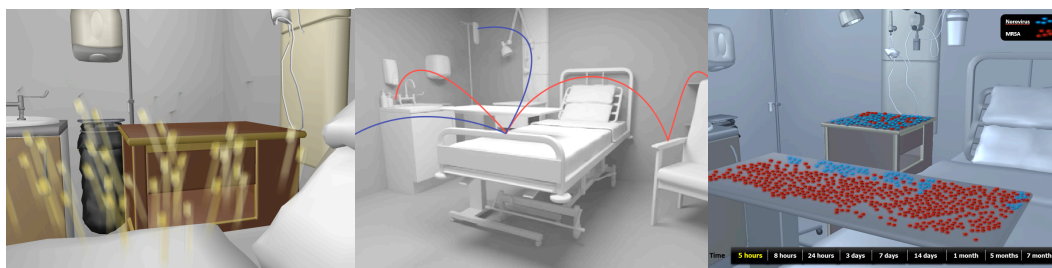


Figure 1: Stills from dynamic visualization prototype sequences: (left) pathogen behaviour - MRSA dispersal; (centre) pathogen transmission - potential complexity of routes; (right) pathogen survival - Norovirus and MRSA.

Conclusion

The discussion above highlights a number of issues (summarized in figure 2): the type of data used and the format in which this data is provided, for - and to - whom, and whether this is privileged (decided by some parties only) or open (decided with the involvement of all); how material is used to develop understanding - and again if this is privileged or open; whether the expected behaviour is through rote instruction or enlightened awareness and

under-standing; how this affects the use of technology (in this case the cleaning products) and the observance of IPC protocols; and, ultimately, how this impacts on the incidence of HAIs.

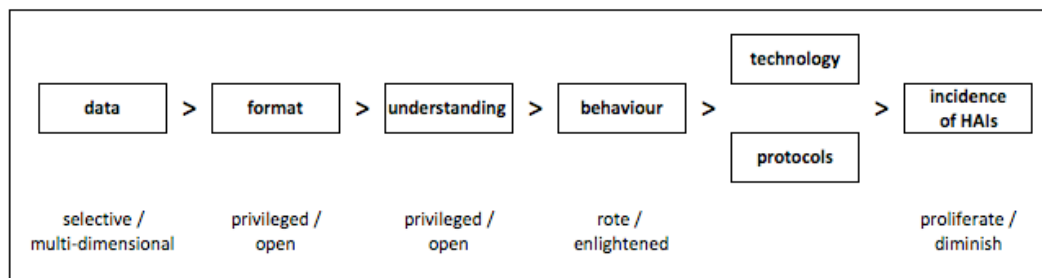


Figure 2: Chain of consequences in development of HAI IPC training materials.

Acknowledgements

The visionOn project is funded by the Arts and Humanities Research Council's Follow-On Funding for Impact and Engagement (Grant Ref: AH/M00628X/1) with support from NHS Grampian, NHS Lanarkshire and GAMA Healthcare Ltd.

The research team, advisory group and partners of visionOn: www.visionon.org

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Design Fiction as a service design approach

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Abstract

Many of the techniques service designers currently use to represent their ideas in the conceptual phase of their design process, such as service blueprints or customer journey maps, are rather abstract, static and schematic. While this might be valuable from an analytical, high-level perspective, such representations do not address the full contextual, emotional and spatial-temporal richness of real-life services. This paper argues that design fiction, because of its focus on telling stories about possible implications of new and emerging technologies, could have the potential to address this particular issue early on. While design fiction is currently mostly associated with more ‘underground’ design domains, such as speculative design and critical design, its principles might also be applied to service design, to visualize, explore and probe potential service scenarios already in the beginning of a design process.

KEYWORDS: Service prototyping, design fiction

Introduction

Being rooted in and evolved from rather technical, business-oriented domains as management and marketing (Shostack, 1982), it may not come as a surprise that many of the representations currently used in service design, are quite abstract, static and schematic. Typical techniques such as touchpoint matrix, service blueprint, customer journey map and business model canvas, all display a strong degree of logic and order, as reflected in their graphic representation, which is basically made up from layers, boxes and arrows. By filling these boxes, organizing them into layers and drawing arrows between them, a service designer is able to create a conceptual map of the intended service.

However, while such schematic visualizations might be valuable when creating an overview of high-level relationships between different parts or stakeholders of a service, they fall short when it comes to exploring and communicating its intended experience as a whole. Services, which can be considered as sequences of multiple service moments (Koivisto, 2009) over time, each involving the use of the service in a specific context, thus call for approaches and

techniques that are less abstract and more holistic, situated and experiential (Blomkvist & Bode, 2012).

Design Fiction

In recent years, design fiction (Bleecker, 2009) has been establishing itself as a new perspective on design. Rather than using it in the traditional way, as a practice to converge to a possible solution for an existing problem, it applies design as an instrument to generate awareness, raise concerns or challenge values about (the use of) new, emerging and future technologies, products and services. At its core, design fiction is about storytelling through and with designed objects. The stories provide context and meaning and bring people and social elements together to the stage, while the objects represent possible ways in which the envisioned technology, product or service is embodied and used. Design fiction is mostly firmly rooted in the here and now, but adds a layer of (near) future to that, thus blurring the boundaries between realism and fiction.

The designed objects in design fiction are being referred to as ‘diegetic prototypes’ (Kirby, 2010), which implies that they are embedded into and consistent within the world of story, even though they might not (yet) exist in the real world. Instead of being just props for decorating the stage, they play an active and integral part in the narrative. One could even argue that in a design fiction, diegetic prototypes are the story’s protagonists and that the scenes of which the fiction consists, should be therefore be constructed in such a way that the audience is able to identify with ‘them’.

So far design fiction has been mostly associated with the more ‘underground’ domains of speculative design and critical design (Dunne and Raby, 2013), where it is being used as a catalyst to start a discourse about the desirability of a new product or to open up a discussion about the social implications of a new technology. As a consequence, the diegetic prototypes used in these cases are not designed with the intention to be outcomes in their own right, but rather as provocations or stimuli, which should trigger and activate people to deliberate their ideas concerning the future.

Recently, design fiction has been related to other, more mainstream design domains, such as design ethnography (Lindley et.al. 2014), design anthropology (Kjærsgaard & Boer, 2015) and sustainable design (Ilstedt & Wangel, 2014), not so much with the intention to speculate about possible consequences, but rather as an instrument to probe, explore and generate possible design solutions. So what if the speculative character and narrative principles of design fiction and diegetic prototypes would be applied to service design as well?

Contribution to service design

Because of its inherent narrative structure, level of realism and situatedness, design fiction could offers service designers an instrument to explore and probe new types of services made possible by emerging and future technologies. As many of these emerging technologies are researched and developed in consortia that consist of technical, industrial, academic and societal stakeholders, intensive communication and collaboration on social and ethical issues in the early stages of development are crucial. Service designers could take the lead in this by

creating design fictions as means to initiate and facilitate constructive dialogue and align collective action.

While design fiction can have various manifestations, it is most often represented through film or video. Because of its visual richness and intrinsic narrative structure, film provides the possibility to merge the richness of today's everyday life with the possibilities of the near future in a believable and compelling way. Having at its disposal an extensive pallet of cinematic and post-production techniques, film also allows for staging situations that are too complex to physically prototype or to make experiential. Thus design fiction enables service designers to make people experience future services as if they are already here.

Using film or video to visualize services that are based on emerging and future technologies, however, is not a new phenomenon. Especially large technology companies have since long a tradition to showcase their future vision through film, the best-known examples probably being Microsoft's Future Vision (2009) and Corning's A Day Made of Glass (2011). These type of films, however, typically show an idealized and utopian world, in which people interact fluently and effortless with large amounts of data through the use of interactive applications. Coming from technology companies, it is not surprising that the narrative is mainly directed at demonstrating the superiority of the technology, how well it is integrated into its context, how easily it can be operated and, in particular, how positively it contributes to people's lives and to society. In terms of cinematic quality, the focus is clearly on bringing out the innovative and positive character of the technologies and their seamless integration into a futuristic, yet recognisable world. There are hardly any storylines, plots, dialogues, emotions and no conflicts or hints to any social meanings or implications that might distract. To support that, the production value of the video is high: crisp images, smooth camera movements, engaging music, detailed interface designs and seamless video effects, all contributing to a vision that should reflect the high-tech image of the company.

What would distinguish a design fiction video from these full-fledged productions, are its inherent speculative character as well as its emphasis on exploration and discussion of human issues and social implications. Rather than showing blue-sky scenarios that are precisely detailed, design fiction opens up the possibility to quickly generate and stage, early in a design process, possible service scenarios without the need for a detailed analysis or sophisticated production means. Furthermore, the aim of the video would be to stir discussion about its use rather than demonstrating its potential greatness. By taking a critical stance towards its use, service designers could start a dialogue about its pros and cons in an engaging, but also thought-provoking way.

First explorations

As a first step in exploring and validating the value of design fiction as a service design approach, its principles were applied within an educational context. As part of a Bachelor course on the use of film as a design tool, teams of four industrial design students were given the assignment to create a design fiction video of 3 to 4 minutes, which should tell a story about the envisioned use and impact of a future service. To start them off, they were provided with an overview of emerging consumer and technology trends, based on which they should develop their service, including designs of and interactions with any interfaces or touchpoints that would be part of it. Their video should then subsequently demonstrate how the service would be integrated into people's daily practices, showing both positive and negative consequences.

In total 18 videos were produced, covering a range of emerging trends and technologies, such as self-quantification, virtual reality, holographic projection and contactless payment. Since resources were very limited, all videos were situated in real everyday contexts, without the use of trained actors, special equipment or staged settings. Apart from the objects (diegetic prototypes) that were designed by the students, almost no modifications to the existing situations were being made during the production phase of the video, resulting in a high degree of realism. By applying techniques such as motion tracking in the post-production phase, interfaces and touchpoints were subsequently mapped on the designed objects or other elements in the existing world. Thus, using relatively simple means, several engaging stories were produced, in which present and future are blended to create somewhat disruptive, yet believable situations. Figure 1 shows screenshots from one of the videos, displaying a range of interactions with different touchpoints of a service made possible by new payment technology.

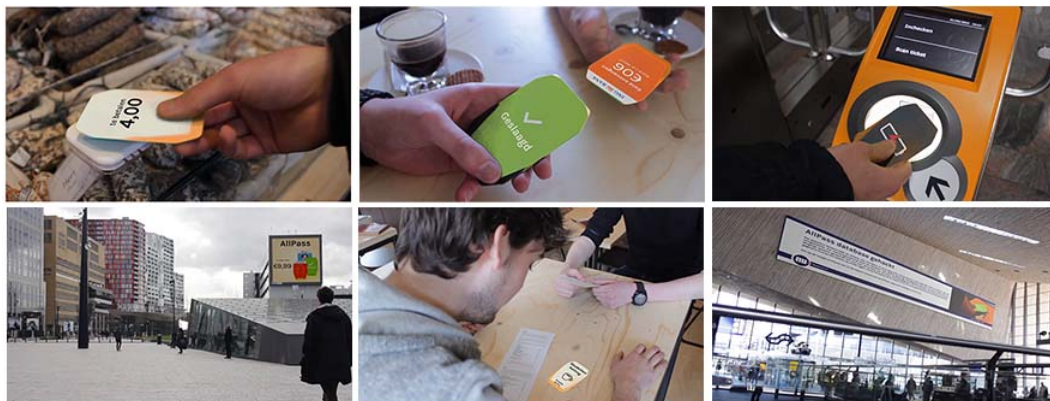


Figure 1 The AllPass, a short design fiction exploring the use of new payment technology

Although the main objective of this exercise was to hone the students' video skills, it also did provide some initial insights regarding the potential of design fiction as a service design approach. Creating a design fiction required the students to consider their concept as a whole, right from the start up until the end of the exercise. By using a story as the driving and binding element in their process, they seemed to be able to keep a holistic overview of the product or service they were envisioning, while at the same time have the capability to review and design it on its different levels of detail. Except for storyboards and sketches of interfaces or touchpoints, no other visual representations of the final outcome were used in the process, the whole experience thus being constructed by creating a story around one or more diegetic prototypes, followed by acting out and refining it over time and in context. More attention for exploring and showing possibly negative aspects of the services would have been beneficial, however, since the students tended to focus primarily on their positive implications.

Conclusion

In this paper we have introduced and discussed the possible potential and application of design fiction as a service design approach. It has been argued that because of its core principle of telling stories through diegetic prototypes, design fiction could be a new and innovative way for service designers to explore and define new services in a contextually rich and holistic way in the beginning of a design process. Some first insights about its applicability have been acquired by studying its use in an educational setting. While

acknowledging that these insights are not yet solid enough to draw any firm conclusions, they do seem to suggest that design fiction can become a valuable addition to a service designer's toolkit.

However, design fiction itself is as a design approach still in its infancy, thus lacking as of yet any formal methods or techniques. More research is therefore needed to identify how and to what extent it should be adapted to fit the particular requirements of a service design process. It is hoped that this paper provides a first step towards that goal.

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Experience and expertise: key issues for developing innovation capabilities through service design.

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Abstract

Public organisations need to rethink the ways they innovate and improve their services. Service design has become a means to achieve innovation capabilities through service design projects with the purpose of *both* enhancing innovation capabilities, *and* creating new service. Based on observations, interviews and project documentations this exploratory paper reflects on the role and articulation of design expertise, how and if it may be transferred through design projects. Further, the relation between learning by doing and learning through expert examples is discussed through a pragmatist lens.

KEYWORDS: innovation capability, design expertise, experience, exploratory

Introduction

Currently there is a need and development of renewed thinking about how to build innovative organizations and organizations that inherently hold capacities for continuous improvement and development work. Most prominently this is seen within public sector organizations, where time for dedicated service development work is scarce and therefore it should preferably be integrated in the employees' regular work. In answer to these challenges, design and service design are promoted and applied as a competence and skill (Bason, 2014). Lack of continuity due to use of consultants, lack of attention paid to implementation and high costs have been spelled out as weaknesses when designers enter into the public sphere (Blyth & Kimbell, 2011; Mulgan, 2014). However, in these situations the main purpose of conducting a service design project is to build innovation capabilities, although new service proposals might be both a wanted and expected outcome.

Processes focused on capability building are carried out in a similar way to ordinary service design processes. The main difference is that the participants – non-trained designers – do the design work, instead of trained designers. The designers instead coach and monitor the

process, similar to Manzini's (2015) idea of diffuse design (non-designers) and expert design (professional designers) knowledge in social innovation.

This exploratory paper reflects on tensions between inherent expectations of what design methods bring to the project and the knowledge of trained designers. The reflections are triggered by the authors' observations of explicit service design projects aimed at building innovation capability within public sector, and their discussions with the designers and participants. In the best case scenario, these projects might achieve good learning experiences, and interest in a new approach and relevant new services. However, they seldom result in grounded capabilities for conducting a distinct project without support in the future. Although these projects are focused on capability building much time is spent in achieving desirable design outcomes, and less time seems to be spent on securing the actual learning aims of the specific project.

One of the basic premises in innovation-capacity building service design projects is that design skills and methods are transferrable through the application of design methods¹. The kind of knowledge that is built into these methods and how and if that knowledge is transferrable are rarely discussed. In the following, these issues are explored based in knowledge of design expertise and a pragmatist position on learning.

Design knowledge: diffuse, novice and expertise

Recently Manzini (2015) presented a spectrum from diffuse design, defined as the human ability to conceive new solutions and change present situations, to expert design. Design experts, Manzini argues, have an enhanced and cultivated ability to design. Non-designer's design ability can be used and levered through facilitation and coaching by expert designers (Manzini, 2015). Oftentimes service designers are argued to be facilitators and mediators, process leaders and coordinators (e.g., Inns, 2007). The specific competence of designers is important to articulate when designers enter into organizations where other skilled professions such as HR personnel are better trained to be facilitators and coaches. Is it really facilitation that the designers do, or is it something else? According to Dorst (2015) framing and re-framing are specific areas of design expertise, Stephens and Boland (2014) note importance paid to bodily senses and aesthetic knowledge, and Schön (1983) highlights reflection-in-action through visualizations and materializations, while Cross (2004) explicitly points out that "ill-behaved" problem-scoping is more important than problem analyses.

Experienced designers tend to reinvent and modify the specific method and the application of it to fit the situation at hand. Designers do this based on profound practice experience acquired through years of design education so they become experts in design. It is well known that becoming an expert demands being engaged in a specific activity for an extensive number of hours. This expertise is used to make reflective decisions in relation to the situation based on intuition, whereas novice designers are more result focused (Bason, 2010; Dorst, 2015).

¹ See for example IDEO's <http://www.designkit.org>

A pragmatist perspective on capability building through experience

In design education, design doing is often promoted and held high. This approach consists of the project-based studio tradition in combination with intense studies in the workshops to acquire craft skills and practice experience. Pragmatist philosopher John Dewey emphasized the role of experience in education as well as in life in general. For Dewey, experience “is simply what occurs when we carry out transactions with our environment.” (Garrison, 1998, p. 66). However, Dewey criticizes understanding experiences as only a ‘knowledge affair’. For him two ingredients are necessary for educational experience: interaction and continuity. Thus emphasizing the actual acting in a situation, and how this affects how we “anticipate, recognize and respond to future experiences, in effect how experiences will change our habits“(ibid.).

So to set out educational design projects as learning by doing makes sense. This involves exposing the participants to design by doing the design work themselves, using methods that include user research, constructing and analyzing insights, idea generation and proposing solutions, while senior expert designers coach and facilitate the process. However, this set up does not seem to work fully in regard to sustained innovation capability through design knowledge, as we will discuss later in relation to the two cases presented below.

Examples from the field

Here two examples of service design projects framed as innovation capability projects are presented. Due to the format of an exploratory paper the projects are briefly presented with the purpose to convey their character. The projects had a stated purpose to develop capability within the organization to apply design methods and approaches after the end of the project. Both projects used service design processes for this purpose. The first project was set within a county council, the second within the educational sphere. In both cases there were double aims of first, learning and second, new solutions.

Children and young people's participation, County Council

The Convention on the Rights of the Child² states that a child has the right to be heard in relation to all matters that concern the child. In order to better meet this article a county council decided to train a group of employees in service design. The goal was to find new ways to involve children in the development and improvement of health-care services.

The project was a joint initiative by the children's rights group and the internal design department at the county council. Employees from the children's rights group were sent to an action learning course run by a design agency, set up in collaboration with the internal design department.

The course was set up as a normal service design project, ending with a set of tested prototypes. The designers presented each phase of the design process, with tools and methods, in workshops. In between each workshop, the participants carried out the design

² Unicef (n.d) FACT SHEET: A summary of the rights under the Convention on the Rights of the Child. Retrived October 7th 2015 from <http://www.unicef.org/crc/files/Rights_overview.pdf>

work back at their respective departments. During this period, the participants had phone contact with the designers to receive support and coaching. The designers did not take an active part in the design work.

Each workshop started with debriefing the work done since the last workshop, in which the participants discussed their experiences and received feedback from the designers.

When talking to the participants about six months after the project, most of them were focusing on the design outcomes and issues for taking them forward to full implementation. Some were reflecting on the tools and methods they had learnt. Even though they saw value in them, they were unsure about the possibilities to continue using them. Apart from a need to better integrate continuous development work in the organization, they also mentioned the need for continued support from the county council's in-house design team for continued or future work of this sort.

Exploring digital learning aids, Elementary school

There are a multitude of digital tools to support both teaching and learning in primary education. The project was set up with the ambition to engage both teachers and pupils in the exploration of how and what tools were used, and ultimately suggest new ones. One explicit aim was to open up the hierarchical educational situation and invite the pupils' knowledge that sometimes exceeds that of the teachers in this area.

The process consisted of a set of workshops where the designers introduced different service design methods, and the teachers (and on some occasions pupils) tried them out by themselves. In between the workshops the designers coached the teachers over the phone or e-mail. However, the basic set up was that teachers conducted the research, analyses, formulated insights and then moved into idea generation and prototyping, coached by the designers. There were workshops when the designers took a more active role for advancing the process, or called in specific expertise such as interaction designers to visualize ideas. According to them the purpose of taking a more active part was to "secure" the process. An example was to make sure the research results were interesting and complex enough to generate "qualitative insights". As the project developed there were difficulties in finding interesting proposals for new solutions, and to 'transfer methods' became the main focus of the project.

The double aim of the projects, and the final focus on methods or design outcome brings attention to the tension of learning something, in this case service design knowledge, and the expectations of achieving a satisfying result from that first experience.

Discussion and conclusion

This short explorative reflection brings attention to three major issues that need to be addressed by service design as research and practice to keep momentum as a change agent within the public sphere. First, an extensive focus on learning by doing leaves little room for reflection and continuity; second, difficulty in the projects to focus on both outcome and learning instead of attending to their relation to each another, and third, the designers' need to reclaim awareness and respect for their own expert knowledge.

Setting up the knowledge transfer as learning- by-doing design projects makes sense from a pragmatist perspective, because it addresses the interaction ingredient articulated by Dewey (Garrison, 1998). However, the above-described projects rarely achieved a sustained capability by the participants and the organizations. The focus was primarily on the transfer of the methods and lacked space for a deeper reflection about results and methods. Part of the expert designers competence was to reinvent and modify the specific method to fit the situation at hand (Dorst 2015). This competence has been built up through the second ingredient for educational experience, continuity, where designers throughout their training have reflected on outcomes and methods from prior projects, and based on this adjusts future actions. The projects could not offer the participants this kind of reflection as they were often one-off interventions. This is actually somewhat ironic as one argument for transferring design knowledge to the organizations is to make sure development work does not become one-off projects due to the cost of procured design competence.

Another aspect worth reflection is how the design outcome affected the learning in the projects. On the one hand, a results-focused culture within the public sector (Bason, 2010) made the participants focus on the design outcomes from the projects, leaving the knowledge transfer in the backseat. However, the quality of the design outcome might also affect the learning from the projects. If the methods in the hands of first-time users do not generate the expected results, will there be incentives and interest in using the methods again? In a follow-up interview after the children's rights-project, the designer reflected upon this project in relation to others. She said in a rather surprised tone of voice that actually, the learning experience among the participants seemed to be better in projects where design experts entered the process and also conducted more direct design work. It is not difficult to imagine that in the first contact with design, a mix of diffuse and expert design work can be fruitful. The organization's own work creates experiences of interaction, and expert design work, which can deepen analysis, reframe insights or stretch ideas, supports reflections about methods and tools that will not be sparked when the organization works alone, without a designer.

The amount of time professional designers have performed specific aspects of design practice, such as framing, analysing and engaging with other people through, for example, prototyping should not be left unacknowledged. Even though this exploratory paper is not a call to reclaim the position of the expert, all-knowing designer sitting in the Ivory tower, we want to highlight that transfer of design knowledge is not just a matter of introducing methods. Designers should themselves acknowledge their expertise and take responsibility for how this knowledge, and not just methods, is transferred. The design-novice organizations cannot be expected to understand the reflection that goes into design practice before they have experienced it.

There is no doubt that an increasing number of people need to and will use their inherent diffuse design ability and design methods. Therefore it is relevant to further explore multiple ways to move from diffuse to expert design. Would it not be interesting to put emphases on specific design knowledge such as framing, aesthetic knowledge and reflection-in-action, and how that can be taught in the spectrum from diffuse to expert design, rather than just focus on methods and tools?

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A Representation Framework of Product-Service Systems for Classification & Design

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Abstract

A Product-Service System (PSS) is a system of products, services, supporting networks and infrastructure that is designed to satisfy customer needs and to provide values. PSSs are very different from each other while some PSSs are similar to some. A representation framework of PSSs has been devised so that various PSSs could be represented and compared using the framework composed of twelve spaces, or viewpoints. Also the framework could serve as a design guide so that those issues from the viewpoints of the specific spaces of the representation framework could be considered in designing PSSs. The framework is composed of spaces such as value, product, service, product-service ratio, customer, business model, actor, touchpoint, context, time, society, and environment. In this short paper, the framework and its spaces are described using examples represented in the PSS Representation and Repository system, which is being developed to support manufacturing servitization.

KEYWORDS: Product-Service Systems, Design, Representation Framework, Classification, Servitization

Introduction

Product-Service Systems (PSS) has drawn significant attention since it can effectively address diverse values of consumers by integrating products and services. PSS has been defined as a system of products, services, supporting networks and infrastructure that is designed to satisfy customer needs and to generate values (Goedkoop et al, 1999, Dewit & De Roeck, 2014, Kim et al., 2012, McAloone et al, 2011). Manufacturing companies can accomplish business innovation by devising new service elements and providing PSSs starting from their

products. Such new efforts are called manufacturing servitization (Baines and Lightfoot, 2013). With analysis of the company's business contexts, diverse strategies could be set for servitization.

Services could be developed so that their product functions can be supported. Repair and maintenance services would fit this classification of services supporting products. On the other hand, new services could be devised to drive active emotional values of their customers in a broadly related manner with their products. Education services to enhance capabilities of the customers, for example, belong to this classification of service supporting customers. In this way, different servitization strategies in service space could be employed (Fischer et al. 2013).

To compare and classify different PSSs, the kinds of offerings of PSSs have been used as a key factor in classification (Gaiardelli, et al. 2014; Tukker, 2004). While these kinds of classifications are useful to compare the results of PSSs, they do not provide enough support in comparing servitization processes. Servitization process information is critical in supporting and guiding a new servitization. Thus, more diverse issues, or viewpoints, of PSSs could be used.

In this paper, a framework to represent PSSs is described using various issue spaces, termed dimensions, such as value space, product space, service space, customer space, actor space, business model space, context space, touchpoint space, and time space. Classification of PSSs using this representation would help in determining strategies and methods for new servitization efforts. Diverse PSS cases, including well-known PSSs and brand new PSSs, could be classified to demonstrate the coverage and the utility of the framework.

PSS REPRESENTATION FRAMEWORK

For designing PSSs, various combinations of product and service elements should be considered. Previous design results on such combinations as well as other critical viewpoints should be saved and retrieved to design a brand new PSS. Experienced consultants may maintain good repositories of successful cases with effective searching mechanism to draw potential hints and insights from the cases to guide the new tasks. In this section, the spaces of the representation framework are described.

A. Value Space

The E3 value concept of economic, ecological and experience values has been proposed in 2010 by Kim and his colleagues (Cho et al, 2010). Some experience values are extrinsic, while others are intrinsic. Function values are objective and extrinsic. Some social values like connectedness are extrinsic. But some social values like respect are intrinsic. Emotional values and epistemic values are intrinsic. Among emotional values, reactive emotional values come quick and go away quick with primary contribution by the external world, while active ones such as love and anger are more subjective. Epistemic values address basic human values related with knowledge like novelty and curiosity. Note that PSSs are designed to provide those values, and different PSSs provides different values. Thus value space of PSS representation addresses the goals of PSSs. An example case of values of a PSS case for smart lighting customization service is shown in Figure 1.

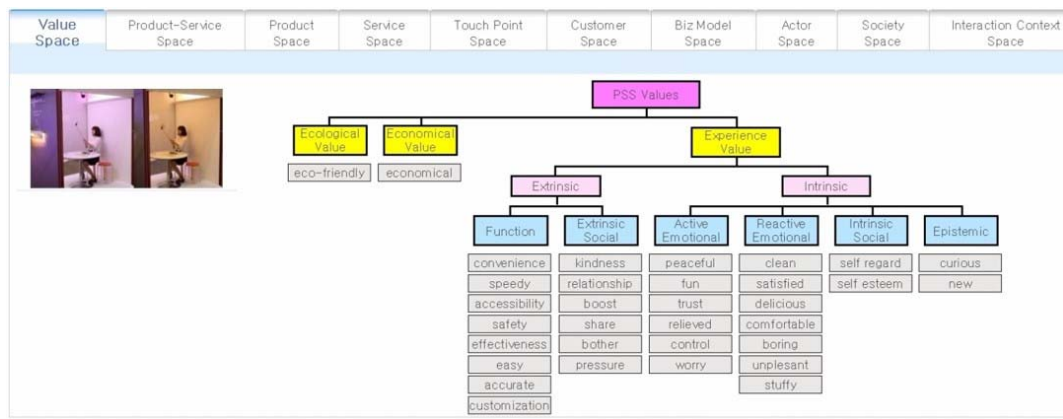


Figure 1 Value Space

B. Product Space

In manufacturing servitization, PSSs are devised starting from products of the companies. The product space is an essential aspect in characterizing the PSSs. We use two sub-spaces. Product classification based on United Nations Standard Products and Services Code (UNSPSC) is used (UN Development Program 1988). The other sub-space is the life-cycle step aspect (Matzen & McAloone, 2009). This sub-space shows at which life cycle steps of the product the new PSS concept is addressed. An example on the product space is shown in Figure 2. This PSS case is about a stroller, which is an end use product that belongs to furniture and furnishings at the top level. It is an accommodation furniture and is in the category of baby and toddler one. Finally it is classified as a stroller. This hierarchy is used in identifying similarities of products used in different PSSs. This case addresses all steps in during phase as well as delivery and recycle as shown in the figure.

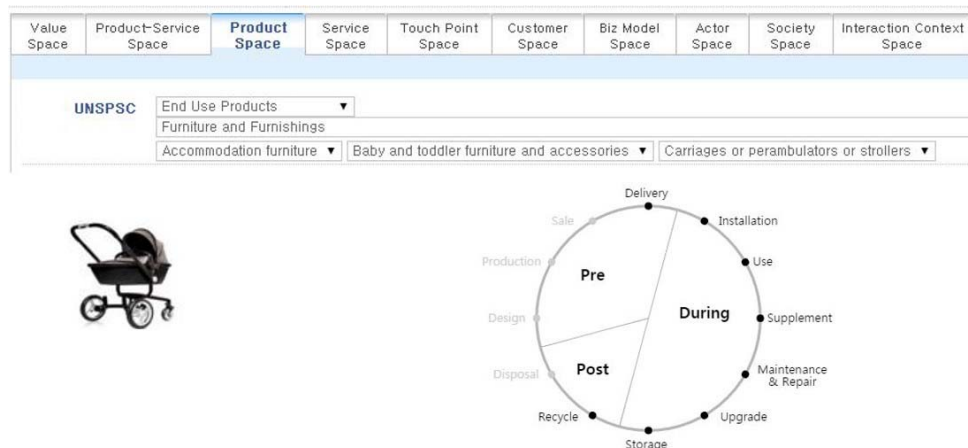


Figure 2 Product Space

C. Customer Space

Services are made by interacting with customers who receive services. One sub-dimension of the customer space is the customer segmentation. Whether they are B2B customers and B2C customers could be the highest segmentation issue with many lower segmentation issues. The other sub-dimension of the customer space deals with classification of the activities of the customers using activity lexicon (USA Bureau of Labor Statistics 2014). Major human activities are classified into necessary activities, contracted, committed and leisure activities

(Statistics Korea 2010). An example of customer space classification at the activity sub-dimension is shown in Figure 3. The customer space of a PSS tells what kinds of activities of what kinds of customers are supported by the PSS case. Note that the value space would be related with the customer space as a PSS would provide those values in the value space to the customers in their activities in the customer space.

Value Space	Product-Service Space	Product Space	Service Space	Touch Point Space	Customer Space	Biz Model Space	Actor Space	Society Space	Interaction Context Space
 <div> Customer Type B2C Customer ▼ Age ▼ Middle ages ▼ </div> <div> Customer Activity Type Committed Activity ▼ Caring of Household Members ▼ Caring for pre-school children ▼ </div>									

Figure 3 Customer Space

D. Actor Space

Context-based activity modeling approach (Kim & Lee 2011) puts the activity at the center of the analysis; actors are elements of activities and important part of the representation scheme. Also the interactions among the actors are also important. By using the customer value chain analysis (Donaldson et al 2006), this information is represented as shown in Figure 4 where Toy sanitizer PSS is represented by the actors involved in the service concept.

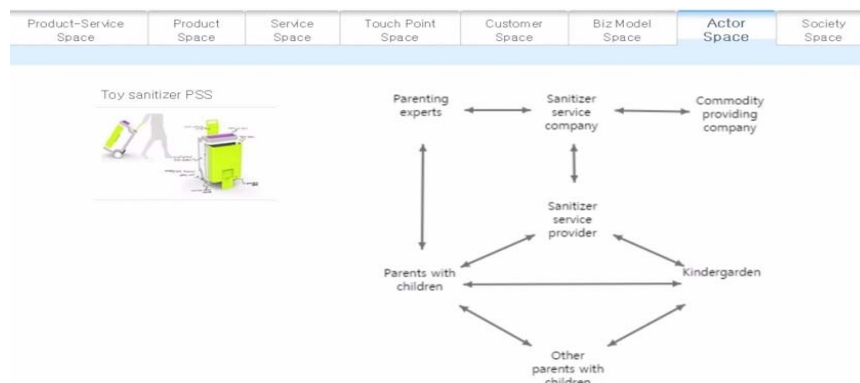


Figure 4 Actor Space

E. Service Space

Services could be developed so that their product functions can be supported. Repair and maintenance services would fit this classification of services supporting products. On the other hand, new services could be devised to drive active emotional values of their customers in a broadly related manner with their products. Education services to enhance capabilities of the customers, for example, belong to this classification of service supporting customers.

We developed the service space composed of five grades from service supporting products to service supporting customers: SSPP, SSPc, SSPC, SSCp and SSCC. If the service supports only product functions, it is regarded as *SSPP*. If the service addresses customer values not directly related with the product, but critical to customers of the product, it is classified as *SSCC*. For example, simple parts replacement and maintenance services are classified as SSPP as in the case of typical tool PSS. Nike Plus service, for example, can be contrasted as it does not add functions of their products of sporting wear or shoes, but it changes

behavior of their customers leading to more sales of their products. This kind of services is classified as SSCC. If there is a little aspects for customer value support while mostly product is supported, it is *SSPc*. If the service mainly supports customer values with a little product supports, it is *SSCp*. *SSPC* (or equivalently *SSCP*) represents the case where product supporting and customer supporting are about the same.

The service space of a PSS case of Personalized Furniture DIY is shown in Figure 5. The PSS has 6 service concepts. It provide DIY furniture, and this is *SSPP*. They deliver furniture after DIY, and this is *SSPc* because this service is basically to bring the product to home. The whole DIY service is customized to customers in terms of what furniture is made and in terms of DIY guide. This is *SSPC*. The education part is to enhance customer capability, but focused to the corresponding furniture. Thus it is *SSCp*. Community and advice services are not confined to the specific furniture and classified into *SSCC*.

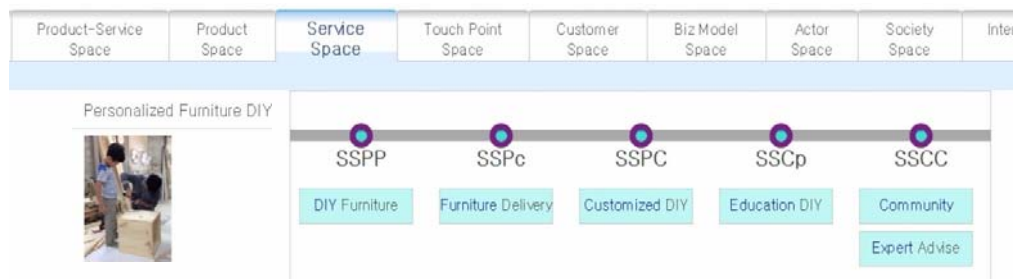


Figure 5 Service Space

F. Business Model Space

New PSS concepts and their business models are designed together. In the business model canvas (Osterwalder & Pigneur, 2010), 9 aspects are used in representing a business model. For each aspect, strategies and business characteristics have been determined by deriving from real business cases (Lee et al., 2011). Specific business model space is represented using those strategies as well as specific additional comments as shown in Figure 6. Smart lighting customization service at coffee shops has been devised where Shop in shop channel strategy is used with commission revenue strategy targeting niche customer segment who would like to have personalized lighting for their activities in coffee shops. Similarities in business model can be obtained by comparing those strategies used in different PSSs.

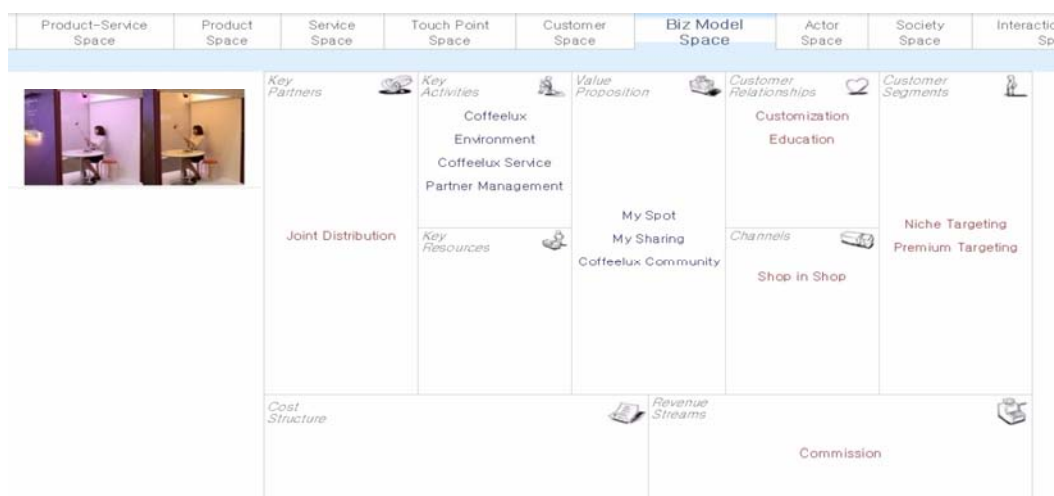


Figure 6 Business Model Space

G. Interaction Context Space

Services involve interactions among actors. Also some of service interactions involve physical touchpoints. Interaction context space is representing these interactions. Unlike actor space, specific human-to-human interactions and human-to-physical touchpoint interactions are represented.

H. Touchpoint Space

Those physical touchpoints used in service interactions are represented with explicit types of provider-touchpoint interaction and receiver-touchpoint interaction. Also affordances and affordance features for these interactions are specifically represented (Kim et al. 2011).

I. Time Space

Diverse values are realized in PSS by interactions between service providers and receivers. The time space addresses when those value creating interactions happen along the time line. Some services provide values only at transaction in discrete manners. Values are continuously delivered in some services as the other extreme situation (Lovelock, 1983). In between these two are the case where values are provided at certain times and the case where values are provided when requested or needed (Tan and McAloone, 2006). Examples of the time spaces of a few PSSs are shown in Figure 7. Toy sanitizer service provider visits each family at certain times as schedule for example. The umbrella rental would be available when it rains and thus when needed. The health check-up service design case provides the value of self-esteem that they have been checked OK with the best hospital throughout the year by using app service telling healthcare guides reflecting the check-up. This contributes that customers kept being reminded about their good experiences, giving much benefits to the hospital (Suzuki et al, 2015).

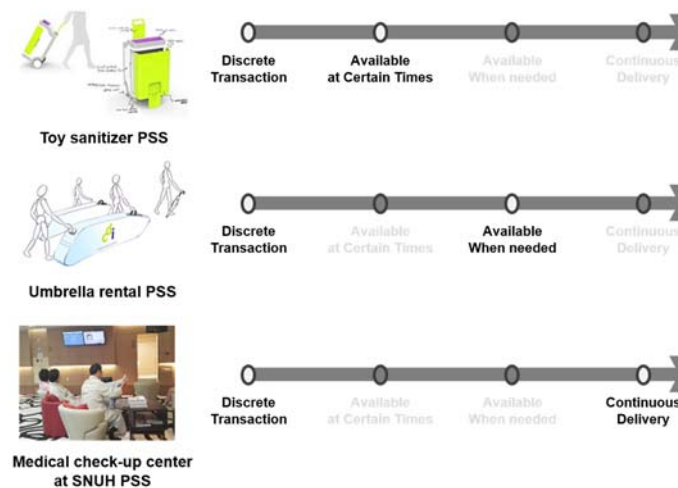


Figure 7 Time Space

PSS REPOSITORY

Various PSS cases are being represented and stored in a repository so that existing PSS cases can be used when designing a new PSS. Similarities among PSS cases are evaluated as well. Similarities can be computed for each space or for a combination of spaces. Examples on how similarities in different spaces of PSSs are used in designing a new PSS are not shown in this paper due to page limitation, but can be found in (Kim et al 2015).

Conclusion

Diverse PSSs are designed and implemented. While there has been some classification using P-S integration types such as product-oriented, use-oriented, and result-oriented, a more comprehensive representation framework for PSSs is desirable so that many issues in designing and implementing PSSs could be addressed. We have described our on-going work on development of such a framework. The framework is composed of 12 spaces. In this paper, 7 spaces have been explained with examples and 2 spaces are briefly discussed (due to page limitation). Value space, product space, customer space, actor space, service space, business model space, interaction context space, touchpoint space and time space have been described.

Note that these spaces could be used in guiding PSS designing so that such issues are properly addressed in the design stage. For example as depicted in a generic way in Figure 8, for a product of the company around which a new PSS is to be design, life cycle steps and their stakeholders are analyzed and these are shown in product space and customer space. Among the activities in the customer space, a proper subset is identified so that those activities and the values associated these are selected so that a new PSS can provide those values. These design processes involve value space and customer space. To drive those values, activities of actors including service providers are designed to propose service concepts to be represented in service space. Evaluation of service concepts are to be done by evaluating corresponding business models. Also specific service interactions and physical touchpoints are designed. With a proper time space guide, a new PSS is proposed with analysis on the weight of product contribution and that of service contribution.

A repository of PSSs is being built where PSS cases are represented using the framework. Also similarities among different PSSs are evaluated so that similar PSS cases from some dimensions can be retrieved to design addressing other issues in new design. It would be desirable many PSS cases designed by other design teams could be stored in the repository to collectively increase the PSS cases space.

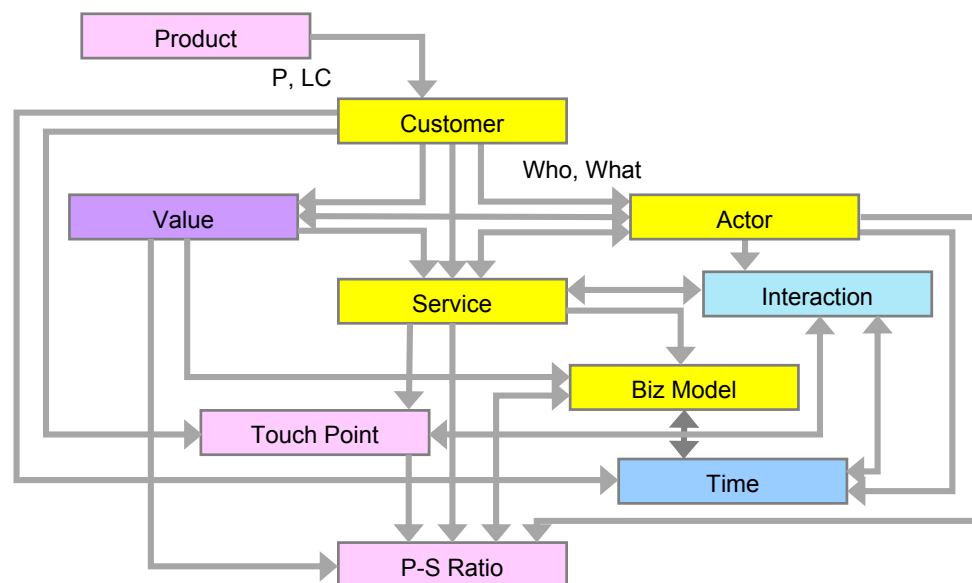


Figure 8 Spaces in PSS Representation Framework

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Service Design Ways to Value-in-Use

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Abstract

What do we mean if we say that a service design work is an example of good design? This paper presents a provisional typology for the ways in which a service design proposal can contribute to value-in-use. The typology covers instrumentality, technical excellence, usefulness, social significance, mutual advantage, collective welfare, and aesthetic values. Moral implications related to norms, power structures and tensions between stakeholders are also considered. It is argued that the typology can facilitate service designers and researchers in framing and re-framing a design effort and conceptualise a value proposition.

KEYWORDS: service design, value creation, use quality, user experience, value-in-use

Introduction

This paper offers a provisional typology for the ways in which a service design proposal can contribute to value, i.e. to something considered good. It makes a contribution to the on-going conceptual development in the field; e.g. design for service and the effort of bridging the gap between design and service (dominant) logic. What are the different ways in which a service design proposal can contribute to something valuable or good? The present work indicates that the answer is manifold, and thus supports earlier work on the subject (Holmlid, 2014). Service design is here framed pragmatically as the application of design practices and principles to service development and management, with a focus on the experiences people have with the service (Holmlid, 2007).

It is often said that service design is about designing for the co-creation of value in the contexts of use (Wetter-Edman, et al., 2014). The idea of value-in-use, or value-in-social-context, differs from other conceptions of value (Edvardsson, Tronvoll, & Gruber, 2011). Value can in design be seen as exchange, signs or experiences (Boztepe, 2007). If value is seen as created in an exchange, then it means, in this sense, that it is realized at the moment of purchase. If value is conceived as signs, then it signifies something personally or culturally important. If value is seen as experiences, it means that it is created in the delivery of the service, and thus that it is part of value-in-use. In a service-dominant rather than goods-

dominant logic, value is co-created by customers and providers during the joint delivery and usage of the service (Vargo & Lusch, 2008). This means that the customer defines the value, and the provider can only offer a value proposition to the customer. The service helps the customer to achieve some goal, and value can be assessed once that goal is reached. Service quality is defined on the customers' terms as a difference between the expected and the realized service delivery. The customer then take an active role in the delivery of the service and hence in the co-creation of it and the realization of its value. The provider, and hence also the service designer, can only prepare the conditions and prerequisites for the service delivery, including preparing the customer for a service encounter. Service design, then, becomes a matter of offering perspectives on the interaction space where providers and customers co-create the value and realize the offered value proposition (Arvola, 2014).

This paper presents a translation of a typology from user experience, into the many ways in which a service design proposal can contribute to value. It is a conceptual investigation that may bridge service logic and service design by facilitating framing and re-framing of conceptual service design efforts.

Multifaceted Value-in-Use

Previous work has proposed that there are a variety of ways in which the user experience (UX) can be said to be good. An example of that is the latest version of the UX qualities framework with its practical, communicational, aesthetic, organisational, technical, and ethical aspects (Arvola & Holmlid, 2015). The framework presented here is a repurposing of that framework to the area of service design. The base framework was built on a set of perspectives with roots in systems design, participatory design, and interaction design (Beyer & Holtzblatt, 1998; Whiteside, Bennet & Holtzblatt, 1988; Dahlbom & Mathiassen, 1995; Ehn & Löwgren, 1997; Löwgren & Stolterman, 2005). The framework also echoes aspects familiar in fields like service quality (Brady & Cronin, 2001), and product semantics (Krippendorff, 2006). It has also been influenced by von Wright's (1963) metaethical treatise of the concept of 'goodness'.

For product design, Boztepe (2007) identifies utility, social significance, emotional and spiritual user values. The kinds of values she identified can be positioned on three dimensions: intrinsic – extrinsic, self-oriented – other-oriented, and active – reactive. These kinds of dichotomies are however not very helpful in characterizing the diversity of ways in which service design can contribute to value. Desmet and Hekkert (2007) have developed a framework for product experience where they highlight three levels of experience: aesthetic experience at the level of sensory modalities; experience of meaning at the level of character, symbolism and meaningfulness; and emotional experience that includes feelings like anger, attraction, discontent or despise that a product may give rise to. In architecture, there are different ways in which a building can be said to be good. According to Vitruvius a good building is characterised by *firmitas*, *utilitas* and *venustas*, or build quality, function and impact as they are called in the Design Quality Indicator (DQI) (Gann, Salter & Whyte, 2003).

We share aim with Lim, Lee and Kim (2011) and wish to develop an approach to judging the value of design, not primarily based on rationalistic methods, but rather based on a sense of quality from a designer's perspective. There are however different perspectives that designers may impose on the design situation, and those perspectives will affect what aspects they will pay attention to (Hult, Irestig & Lundberg, 2006). The typology of values-in-use presented in

this paper represents a pluralistic view of value-in-use, where the different perspectives of the framework function as reflexive and analytic lenses to use when interpreting, understanding and judging the value-in-use of a service design.

Instrumentality

The instrumental value of a service concerns how good it is as a service of its kind. For example, how good is a certain booking service for booking tickets, or how good is a photography service for getting photos taken. The service is in this perspective good for mediating action towards achieving some goal. The service itself remains in the background of attention. Qualities such as effort, load, safety and usability are associated with this perspective, as well as indicative semantics, affordances and comprehensibility.

Technical Excellence

A service can also be delivered with technical excellence. At a restaurant they may, for example, be very good at a particular kind of cooking, and the mechanics at a garage may have the highest of skill and craftsmanship in, for instance, restoring old cars of a certain kind. A question then is to what degree the service makes proper use of that excellence. Technical excellence is also the level and advancement and refinement of tools and technology used. To what degree are technical constraints and opportunities considered? Qualities such as performance, efficiency and reliability are associated with this perspective. It is however, not only the service providers that can possess technical excellence. So can also the customers, and a service aimed at people with the highest level of expertise is probably not for intermediate or low expertise customers. Finally, also the service design process may be executed with high technical excellence and skill. The technical expertise and skilled acts of designers, service providers, and customers is crucial in design, delivery and use.

Usefulness

A service is useful when the object achieved has a utility value for a purpose. The truly useful is for the good of someone or something. In what way does it contribute to the welfare and health of someone? Does it relieve some frustration or pain, is it a good-to-have, or is a convenience for someone? The useful and relevant service is something the users have use for. It is beneficial in some relation to the motives of their activities. A training programme might, for example, be something that some people find useful, if it serves them good health.

Social Significance

A service that is socially significant is for the good of a person in relation to other people. It is a service that contributes to that person's status and identity. The aforementioned training programme may for example only be accessible to the members of a certain exclusive club. The question is also how the service presents its contribution to the customers' status and

identity, and what symbolism that is used. Associated qualities include also face, impression, role and identity fulfilment, belongingness and tradition.

Mutual Advantage

The service is a place for co-creation of value for the stakeholders involved. It is hence of mutual advantage to engage in the service. The mutual advantage is gained in the cooperative achievement that is realised in the interaction and co-experience of the service. This means that the service design needs to support the cooperation and coordination between actors (both frontstage towards customers, and backstage between internal actors). The question is what qualities this cooperative and coordinated interaction is characterized by, and how it is configured to achieve mutual advantage.

Collective Welfare

If the useful is for the welfare and for the good of a person, then the collective welfare is for the good of some social unit. Such a social unit could include the family, the community, the organisation, or the state. This implies also a division of labour into roles, and the rules that govern the social unit, which individuals and services are expected to adhere to. The service may not only co-create for example utility value, but also be good for the family. The photography service may for example help bond a family closer, while also producing value for the photography company, which is another social unit. This perspective includes matters like organizational change and business models.

Aesthetic Values

The aesthetic values refer to matters of the hedonic, i.e. that of pleasure. It can be the passive experience of formal aesthetics in visual and physical design, and the choice of materials and media. It can also be active experience in interaction flow and on-stage performance, and behaviour, spanning from the immediate wow-experience, over short-term mmm-experience at a closer look, and the ahh-experience after living with a service for months. Wow, mmm, and ahh is a terminology borrowed from Einar Hareide, at Hareide Design. The role of expectations, recognition and novelty in the experience should not be underestimated. Matters of sensation, emotion, affection, presence, mindfulness, spirituality, happiness, engagement and fun belong to this kind of value-in-use.

Moral Implications

Design decisions made with regard to all of the forms of value-in-use introduced above come with moral implications. What is beneficial or useful for one person may be harmful for another person. What is harmful for one may be beneficial for the family or good for the state. The question of for whom the design is made is pivotal. This points also to matters of maintaining or disruptive dominance and power structures, and who's voice that is important to listen to. It is a design question of exclusion, punishment, obedience, and the good of a

person over others, as much as it is a question of inclusion, reward, freedom and the good of all. The critique of norms and ideals are also related, just as a duty to maintain well-grounded norms for the benefit of many. What kind of world is it that a designer wants to create? What kind of world do stakeholders and designers want to contribute to? What is OK to do, and what is not OK to do? What habits do we want to encourage and what habits do we want to avoid? For example, do we want to encourage a healthy way of life where you eat a varied diet, or do we want to encourage eating junk food, or is it more important to service something tasty in shortest possible time? This has to do with what the harmful or healthy habits are, and good service design is often about striking a balance or prioritizing between potentially conflicting values for the good of humans as well as the good of the world.

Conclusions

The different kinds of values are summarized in Table 1.

Kind of Value	In relation to	Defined by
Usefulness	Purpose	Beneficial to and serving the purpose of the activity or welfare in the life of someone
Instrumentality	Goal	Serving the goal well
Technical excellence	Requirements	Excelling in performance in relation to requirements or competition
Social significance	Symbols	Status and identification
Mutual advantage	Stakeholders	Beneficial for several stakeholders in cooperation
Collective welfare	Social unit	Welfare of an organisation or society
Aesthetic values	Individual	Pleasurable experience
Moral implications	Outcomes	Desirable and undesirable outcomes for the happiness and wellbeing of people and other living things

Table 1. Summary of the different kinds of values.

As noted in the section above on moral implications, it is important for a service designer, critic or researcher to ask the questions of why, as well as by whom and for whom, to disclose the motivations behind the design and the values to which the service may contribute. A typology of pluralistic perspectives on values can work as a basis for reflexive argument and can be used to create common ground in a particular design project. The design rationale need to transpose between different levels and kinds of value, at which it becomes a tool for thinking the design through, and for interpreting and exposing tensions between different values and between different stakeholders (Arvola & Holmlid, 2015; Holmlid, 2014). It becomes also a framework for a variety of ways to offer value-in-use that

can facilitate service designers and design researchers in framing and re-framing a design effort and conceptualise a value proposition.

The typology presented here is neither final nor comprehensive. It is a translation of a framework defined within the field of UX, and carries assumptions related to technology, and has an overweight towards experiential values. “Usefulness” appears to cover too many sub-matters and can possibly be divided. What to call the “Aesthetic values” is not clear. “Moral implications” are at a different level than the other kinds of values in the framework. Further developments of a framework of this kind are possible, and how it can be put to use in service design practice as well as in service design research needs further study.

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Towards sustainable impact after University-Government design projects - Case of worker services in Singapore

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Abstract

Recently, there have been a number of design collaboration projects between government agencies and external design experts in many parts of the world. The Singapore government is known for its effectiveness and efficiency. Design collaboration projects are mainly initiated by top management in the government. In its early stage of adopting design, it is ever now important for the Singapore government to diagnose its current state of understanding of the true roles of design, conditions needed for nurturing design capabilities and set future directions they need to head towards. With this aim, this paper looks into recent design collaboration projects between a Ministry and a University in Singapore, to investigate challenges and opportunities in creating sustainable impact after the collaboration. By doing so, we believe that the government can truly benefit from the adoption of design for citizen-centred transformation.

KEYWORDS: Government, Public Service, Singapore, Design Capabilities

Introduction

Service design has been recognized in the public sector as a promising approach to deal with complex societal problems and for its ability to create public services and policies in a more citizen-centric way. We have recently seen a number of projects where government agencies collaborate with design schools. These movements have been initiated and predominantly observed in Europe (Design Council, 2013), and we do see more and more cases in other parts of the world, including North America, Australia and New Zealand, Latin America and Asia (Bason, 2014).

Singapore is one of the leading Asian countries in this aspect. Throughout the nation's developmental history, Singapore government has always been open to innovations and adopts good practices and models from abroad (Tan, 2013). Singapore's national legacies and its size are also known for providing platforms for experimenting changes. Several

government agencies, including various Ministries, Civil Service College and Prime Minister's Office, have piloted design projects and participated in design education programs (Ng, 2014). The impetus for these visible initiatives advocating benefits from design approaches came from top management within the government.

In its toddling stage of adopting design, it is now ever important for the Singapore government to reflect on what their earlier attempts have achieved thus far, what the actual impact was, and whether there are sound conditions in place for sustainability beyond projects. Driven by these aims, this paper looks into recent service design projects that one Ministry in Singapore had initiated, and thereafter engaged a local design school to design government services for the workers.

We conducted three sessions of in-depth interviews with the Ministry officers and design students who participated in these projects. The focus was on investigating what happened after the design projects, in order to identify challenges and opportunities in creating sustainable impact. By doing so, the Ministry can truly benefit from design collaborations and develop design capabilities, rather than considering these projects as 'one-off events'.

Challenges in Adopting Design in the Public Sector

Despite the presence of successful case stories and design potentials, challenges in adopting design in the public sector are still being reported. Challenges include unfamiliarity and cultural gaps between government and design practices (e.g. Vaajakallio et al., 2013), silo government structures that hinder from having a shared goal or holistic view (Bason, 2010), and lack of resources and commitments (Hyvärinen et al., 2015).

The service design community has been exploring various directions to embed design in the public sector. One solution is to drive continuous design projects to function as pilot and experimentation for government agencies to realize their 'design readiness' (Bailey, 2012) and to gain relevant understanding of design (Junginger & Sangiorgi, 2011). Incubating an 'organizational design champion' has also been highlighted as a way to overcome the problem of insufficient resources and as a way to nurture organizations' design capabilities (Cooper et al., 2011). The role of conversational design pieces is also emphasized to help organizations realize their current state and envision future directions (Junginger, 2015).

Junginger (2015) recently suggested paying more attention to organizational design legacies of the public sector, instead of confronting them with design. Most organizations already have design legacies in place, though many are probably flawed and poorly suited. The designers' role would then be to initiate design conversations and help organizations to articulate, visualize and engage such design legacies (Junginger, 2015).

Case: University-Ministry Collaborative Projects in Singapore

In 2014 and 2015, two rounds of service design projects were conducted in collaboration between a University and a government Ministry in Singapore. Over the past five years, this Ministry attempted to reshape its relationships with citizens. It recognized the ever-evolving needs of citizens, their expectations of services provided and how technology has advanced citizens' means of communication and information sharing. To drive this change, an

international design agency was engaged to rethink service spaces at its premises and its mid-management employees were sent to design education programs. An internal unit was also set up, to understand citizens' behavior and motivations and ultimately improve their experiences with the Ministry's programs and services. This internal unit had initiated both rounds of the collaborative projects with the university.

The overall aim of the projects was to improve the Ministry's interactions with the workers in Singapore. Objectives were to empower workers with knowledge of their rights and employment rules, and to drive take-up of self-help services when dealing with the Ministry. These workers face difficulties in understanding the abundant regulations and processes of the Ministry due to language barriers, cultural differences (for migrant workers), third-party intervened communication and so on.

The design projects produced various solutions, including the enhancement of service journeys in the Service Centre and alternative ways to communicate and reach out to the various migrant worker communities. The projects concluded with presentations to the Ministry's middle and top managements, and an exhibition at the Ministry's headquarters to showcase the role of design. The solutions were demonstrated through service prototypes and video narrations. These projects were so well received by the Ministry that six design students were invited to a 2-months long internship program, to further develop and deploy some of their design solutions.

Interviews on the Projects' Afterlife

We conducted follow-up interviews with two Ministry officers who had participated in the design projects. To juxtapose findings from the Ministry, we also interviewed the six design students who participated in both the design projects and internship program. Overall, three interviews were conducted and each lasted between 60 – 90 minutes. It was a semi-structured interview, focusing on the key themes presented in Table 1. All interviews were recorded and verbatim transcribed.

To the Ministry officers	To the design students
<ul style="list-style-type: none"> ▪ Their experiences in participating in the design projects ▪ Their perception on benefits and limitations of the projects ▪ What happened after the projects, especially on implementation of the design propositions ▪ Challenges and organizational barriers when embedding the results of the projects ▪ Future opportunities and ideas for overcoming the barriers 	<ul style="list-style-type: none"> ▪ Their experiences and challenges in participating in the design projects ▪ Their job responsibilities and roles in the Ministry during the internship ▪ Opportunities and challenges in working as a designer in the public sector

Table 1 Key themes of the follow-up interviews

Organization in Transition: Challenges and Opportunities

From the follow-up interviews, we identified challenges and opportunities in creating sustainable impact after the collaborative design projects. We present our findings below.

Needs for a Common Understanding of 'Design Thinking'

Visible initiatives for benefitting from design were encouraged by top management in the Ministry as an organizational strategy, for example, many mid-management officers attended short-term programs like 'design thinking workshops.' Those who were exposed to such programs use the terminology 'design thinking' as a representative term that refers to methods and skill-sets of designing.

They do perceive that the strength of design is to involve citizens' needs and experiences into their service developments. But their perception on what role a designer can play in the Ministry seems yet to be established. Although the design adoption is encouraged by the management, the vision needs to be shared with frontline staff who actually participate in the projects for the change. Some frontline staff' perception on the role of designer may not go beyond those who make incremental changes to service touch-points.

"Design is definitely very important, because a simple little information, that we sent to customers may trigger a larger response from customers if a design of a letter is not done properly, or the content and the way you write is not done properly and make it simpler and easier for the customers... How we package information, the nuancing, the words we use, all these definitely play a part, and shaping and reacting the customer behavior as well." (Frontline staff in the service centre)

Dilemma Experienced by Frontline Staffs

Frontline employees' participation in the projects was very crucial as they hold both the customer knowledge, including customer contacts for user research as well as domain knowledge such as government regulations. These frontline employees recognize the need for change and improvement to the Ministry's services; unfortunately they face the constraints of limited resources (i.e. manpower and time) to participate in projects and work on design implementations. Their hectic work demands made it even harder for frontline employees to spare time for developmental projects with high commitments.

"When we try to focus on doing the project we tend to get occupied when suddenly there is a case that is escalated or a case we need to attend to, we cannot be totally 100% involved in the project, to think to sit down to really do it, so that is one of the challenges that we have...if high management can give us the assurance, actually it's ok maybe three days we will be focusing on core jobs but two days will be solely (dedicated to) whatever we need to do with design thinking, like attend workshop, eLearning whatever sort of thing rather than double hats at the same time during the week." (Frontline staff in the service centre)

"The challenge is how can I get my officers out from the ops and equip them with the kind of knowledge to do it." (Middle management staff from the frontline service operations department)

The frontline employees encountered difficulties in thinking in new ways during design projects participations, which in turn, caused them emotional anxiety.

"We are too involved in our operations, very hard for us to think outside of the box to do these projects. When we do these projects we may be sticking to our usual thinking...so that is one of the challenges." (Frontline staff in the service centre)

Frontline employees are constantly tasked to adapt their work styles and relearn new skills due to continuous changes in the Ministry. The abovementioned challenges made it difficult for frontline staff to actively participate in design projects.

Project Ownership

There had been several related actions after conclusion of the design projects, for example, embedding new interface elements into the existing e-kiosks in the service centre. The Ministry officers expressed their concerns over the implementation process, which was slow because the people involved in the design project might not be the ones who would be involved in implementation. There is a need to ensure that the background and impetus of the project was communicated to those who would be implementing the solutions to ensure buy-in and follow-through.

"The implementation and solution may be taken care by different teams, depending on the staff movement, depending on the area of work they are making changes to, so there might be some gap, because the people who are involved in the implementation may not really understand the background and why these changes are needed." (Middle management staff from the frontline service operations department)

"The developer who was asked to do the kiosk, we wanted him to use our kiosk design to test if our interface works but he wasn't able to achieve that so that in a way also slowed down the whole process of our kiosk prototyping." (Design student intern).

Identifying Internal Design Ambassadors

From the interviews, we identified a middle management employee who has good understanding of design and in fact took up the role of educating other employees on design thinking and practice. As the Senior Assistant Director of a division, he often iterates his wishes for project participants to continue to use design thinking in their daily work.

Similarly, there are other individuals who have relevant knowledge and skills, as well as personal interest to promote design within the Ministry. Different from 'organizational design champion' (Cooper et al., 2011), these internal design ambassadors are employees within the Ministry who have better insights on how design skills and mindsets can be relevantly embedded in their daily work, and act as potential 'silent designers' (Gorb & Dumans, 1987). The senior management could strategically involve this group of internal design ambassadors in design projects to support participants from frontline and to facilitate the afterlife of projects, including knowledge transfer and implementation of projects' outcomes.

Strategy for Long-term Impact beyond Quick Results

The Ministry currently made a long-term contract with the university to use design in various design challenges from the level of frontline service to policy-making where various departments are involved. In this long-term collaboration, the Ministry strategizes to make changes in the organization by spreading the process and the impact of service design projects across different departments and also having reflective activities after the project, for example, workshops or follow-up interviews. By doing so, the Ministry aims to have a mutual understanding of challenges for developing design capabilities and set the goals and

action strategies together. This kind of long-term visioning and strategy making will allow the government to see the outputs of each design project in a long-term view, as mid-way outcomes for long-term transformation beyond quick results. This way, the government can have a mindset conducive to see real impacts of the university-collaboration projects and the role of design in strategizing transformation.

Discussion and further work

From the interviews, we have learned that the current state of the Ministry in adopting design is located between ‘design for discrete problems’ and ‘design as capabilities’ in terms of the Public Design Ladder model (Design Council, 2013). Whereas adopting design comes from senior management, some communication gaps currently exist in the Ministry across different departments and different levels. During the interviews, the Ministry officers realized that they have different understanding on the role of design and had experienced different types of challenges. At the same time, we have also identified the opportunities for the Ministry to strategically embed design capabilities in their everyday work and enable long-term impact, such as supporting internal design ambassadors and developing a long-term relationship with external design experts.

The Ministry is currently in transition. Our position in this paper resonates with Junginger’s claim (2015) to understand design legacies of the organization, to take the design collaborative projects and the follow-up interviews as steps for both parties to map the current state and co-develop future strategies. This Ministry has great interest to embed design for citizen-centred services and policies. We plan to co-investigate opportunities and challenges by working with more Ministry officers from different levels.

Acknowledgement

This research is part of Research Project supported by AcRF grant (WBS no. R-298-000-007-133) provided by the Ministry of Education (MOE), Singapore and the School of Design and Environment, National University of Singapore. We thank the Ministry for supporting the collaboration projects and providing us with valuable feedback.

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Mapping what actors know when integrating resources: Towards a Service Information Canvas

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Abstract

Even though service is described as actors integrating resources to achieve values, research on perspectives on knowledge that these actors have when integrating resources has not been part of service design research. In this paper we experiment with a technique, based in a service scenario, to map what actors know as a consequence of the events in the service process. We suggest that the technique called Service Information Canvas is valuable in a service design toolbox, and give access to understanding of service processes that is not currently available through other design tools.

KEYWORDS: Service Information Canvas, visualization, diachron, synchron, knowledge exchange, co-creation

Introduction

Service is sometimes described as the value created by actors integrating resources in systems and through institutions (Grönroos, 2008). In this definition a lot of assumptions are being made. One such assumption is that the actors integrate resources based on their knowledge. Sometimes this knowledge is regarded as one of those resources that actors are integrating; which in effect assumes that actors have some meta-knowledge to use knowledge as a resource. For the purpose of this paper, we will view actors as agents, where knowledge is not regarded as an external resource. Knowledge in this sense, may both be gained from education and training, accumulated from experience, and gained in a specific situation.

As an outset for design, this poses difficulties as well as inspiration. In design for service a lot of emphasis has been put on mapping actions, actors, events and systems of resources, and using different visualization techniques to materialize these aspects (see e.g. Segelström, 2009; Segelström & Holmlid 2011). Some of the techniques show how, whatever is visualized, develop over time, so called diachron techniques. Some of the techniques are not time based, so called synchron techniques (Diana et al, 2009). Typically what is visualized in diachron techniques, such as service blueprints or customer journey maps, is what actors do,

sometimes including the service experience, and some of the roles of people and technology used. In synchron techniques, such as system maps, it is mainly relationships, structures etc, that is visualized.

It is common to use e.g. customer journey maps (Segelström 2009). A typical customer journey map centers in on the customer and his/her actions and experiences from the beginning to the end of his/her service process. They are often qualitatively rich, and have a strong value in communicating and sharing insights as well as empathy (ibid.). However, how knowledge develops over the process, or what information certain actors have or communicate is not integrated in the visualization. Service blueprints, on the other hand, are more detailed regarding how to manage a service, and the timing of interactions between the customer and the service provider (Shostack, 1982; 1984; Bitner, Ostrom, & Morgan 2008). Still, it is not made clear which actor has what information at given points in time. Even extensions of the blueprint model (see e.g. Polaine, Løvlie, & Reason, 2013; Patrício, Fisk et al. 2011) to include more than a dyadic relationship, does not introduce details of knowledge used or information flows.

In this paper we suggest and explore a technique to map what situated knowledge actors in a service system have access to at specific points in a service process.

Mapping information and information exchange in processes

The technique we used was inspired by techniques from cognitive systems engineering and resilience engineering (e.g. Rasmussen, 1983), but simplified to fit into a collaborative workshop session set up. Cognitive systems engineering theories have been applied earlier in service, e.g. by Blomkvist et al (2010), that used the concepts of “barriers” to look into complex safety critical service systems.

The Service Information Canvas consists of one row for each role or actor in the service, and a column for each event or change in system state. In each cell one documents, given the event, what each of the roles then know, see Table 1 for a template.

	Event/state change 1	Event/state change n
Role 1	What Role 1 knows at the time of the event and by having experienced Event 1	What Role 1 knows at the time of the event and by having experienced Event n, and possible accumulation of knowledge over time
Role n	similar	similar

Table 1. Template for Service Information Canvas

The Service Information Canvas is a diachron technique (Diana, Pacenti, & Tassi, 2009), in that it includes a time dimension. As in many diachron design techniques time is represented in a discrete manner sometimes in stages. In this technique the discrete steps are formalized through, and represents, state changes in a service system.

Experimenting with the Service Information Canvas

The experiment with the Service Information Canvas was part of a series of workshops with three industrial service companies where service prototyping techniques were explored.

Service setting and scenario

For this specific workshop a scenario based on an emergency situation in a mine demonstrating today's situation with three role descriptions had been developed to support the exploration of service prototyping techniques. Six out of nine participants in this workshop were not acquainted with underground mining, and had backgrounds in three different industrial service companies, and a university. The exercise was a way to explore documenting techniques for a highly context dependent situation, when persons with situated knowledge are scarce.

The scenario was presented by the moderator together with film clips from work in underground mines to frame an understanding of the characteristics of this type of work environment. The scenario and role descriptions were based on earlier field studies in underground mines with the ambition to make them as realistic as possible.

The scenario was describing a safety critical event, a fire in an underground mine. The aim was to place the specified role descriptions, in the format of personas, in a specific context. The scenario gives glimpses into equipment, tools and pre-defined processes.

A day in the mine (an excerpt)

It's Thursday at 16:00 and Peter, the shift operator in the operations center, is relaxed, the radio traffic is calm. Things are going well today, they're keeping to the schedule. The drilling at production front 340F62 is even ahead of schedule. Peter smiles – Bo, the drill machine operator, just called over the radio and reported the task done. At the moment 67 persons has entered the mine, but it's not Peter's main focus.

Suddenly, the fire alarm goes off. It comes from a smoke detector in the outgoing ventilation shaft. The fire can basically be anywhere in the mine. The emergency system has also triggered an alarm signal, both visual and audible, in the underground lunch room and the workshop at 700 meters. Peter reads out a well-rehearsed warning message over the radio, possible for all to hear. This is very time critical, people needs to be evacuated out of the mine or into one of the 10 rescue pod that are placed underground close to the active production fronts.

/.../

Peter continues to contact people over radio and check their location to make sure that everyone ends up in a safe place, be it in a rescue pod or out of the mine. Once everyone is safe, he shuts off the audible alarm from the stationary alarm systems, to reduce the noise level for the fire fighters and the people in the rescue pod. 10 minutes after the fire truck has reached the drill rig, the firefighting crew tells him that the fire has been extinguished. Peter is relieved when he turns towards the mina manager who has just entered the operations center, "All survived" he says and smiles.

Sensitizing and role-playing

The group divided into three teams to follow the actions of one role description each and the scenario was played out as a role play. The three persons with previous knowledge about the particularities in this kind of work were equally divided in the teams.

During role playing the groups of participants were using locations apart from each other to simulate the different locations in the mine; e.g. one group was walking outside in the wind and traffic to emulate a noisy environment inside the mine. An alarm signal was going off during the role play, where one person acted and initiated the fire alarm. The groups were out of sight from each other imitating the distributed way of working in underground mines. Using this ongoing prototyping technique (Blomkvist & Segelström, 2014) was a means of

sensitizing participants, but they were also expected to share their experiences and doings later in the workshop.

Debrief and sharing scenario understanding

After having played through the scenario during six minutes, there was a debriefing about the ongoing technique used in each team. After the debrief the whole group reconvened around a table and had an initial discussion about some of the issues experienced during the role play, such as coordination issues, communication issues and time issues. The suitability of the scenario itself was also discussed, where concerns about the consequences of using a too structured scripted scenario was raised.

Making the Service Information Canvas

In trying to capture and document the experiences acquired during the role play, a decision was made to map out what the different actors knew at the time of various events and how it changed over time. Next feelings/emotions were added for the actors during the multiple phases on to the canvas. The result was a simple *Service Information Canvas*.

Results and discussion

The Service Information Canvas

The direct result was a simple Service Information Canvas, which was drawn on a whiteboard. In Table 1 a selection of notes from the canvas is shown.

Table 2. Contents in the Service Information Canvas.
Red Text in italics shows possible experiential values

	<i>t=0</i>	<i>t=fire alarm goes off</i>	<i>t=Peter reads warning message</i>	<i>t=Peter calls Tom</i>	<i>t=local SOS calling</i>
Bo Drill operator	Finished his task Bo's location <i>Satisfied</i>	Hears/sees fire-alarm	Bo realizes his drill is on fire My drill is on fire <i>Concerned</i>	<i>Focused</i>	<i>Focused</i>
Tom production supervisor Rescue team leader	Tom's location Knows the rescue team	Hears/sees fire-alarm Get fire crew and get to fire truck <i>Not again, a fire exercise (tired)</i>		Peter is clueless Not an exercise <i>Annoyed</i> <i>Afraid of dead bodies</i>	

	<i>t=0</i>	<i>t=fire alarm goes off</i>	<i>t=Peter reads warning message</i>	<i>t=Peter calls Tom</i>	<i>t=local SOS calling</i>
Peter Shift operator	Calm, works as planned Bo is in 340	Knows about the fire-alarm (from outgoing ventilation) 51 people left <i>Busy “bottleneck” Too much to do “reporting in/out of mine, rescue pods etc.</i>	<i>Busy “bottleneck” Too much to do “reporting in/out of mine, rescue pods etc.</i>	Tom is moving to fire truck Tom, rescue team has right equipment <i>Unsatisfied Uninformed Didn’t know where to send Tom</i>	SOS service on their way <i>Frustration, because of lack of info</i>

Finding challenges and critical events

The canvas made it possible for the group to identify challenges and critical events in the service process. There were four specific challenges identified; Unspecific alarm, Tom was under informed, Peter became a bottleneck, Bo was scared.

For each of these the group provisionally identified, from a service perspective, what “components” that was central for the critical event. The group also tried to identify possible techniques to prototype solutions with respect to these components (see table 2).

Table 3. Critical events, and related service components

Critical event	Service component	Possible prototyping techniques
Unspecific alarm	resource, system	<i>Diachron:</i> process map <i>Synchron:</i> system map
Tom is under-informed	process, experiential	<i>Diachron:</i> processes, customer journey map, service validation, experience diagram <i>Synchron:</i> information map
Peter as a bottleneck	Process	<i>Diachron:</i> processes, customer journey map, service validation, experience diagram <i>Synchron:</i> Measure not in isolation, Resource/communication map, actor map
Bo is scared	Experiential, progress	<i>Diachron:</i> Experience prototype, storyboard

Understanding technology shifts

The Service Information canvas also made it possible to discuss consequences of changing technology resources in the service process. For example, the group discussed what would be the difference if radio communication was changed into one-to-one communication. The obvious analysis, which can be done without the canvas, is that only the persons communicating would have the knowledge communicated. But the canvas made it possible to discuss the consequences throughout the process, who is lacking what knowledge, and which communication events and actions that needs to be added to compensate for that.

The group also discussed that some of these ideas could be quickly prototyped around the table, by easy and small role-plays with three persons. To give the experience of one-to-one communication, information could be passed on through notes, or by whispering. The rest of the group could then observe and gain insights, that later could be documented in a new canvas.

Limiting the canvas to situated knowledge

In the experiment we focused on situated knowledge, as a consequence of specific events. In the discussion, after doing the canvas, the group concluded that as a means to summarize important issues in how a service process is limited by internal deficiencies of information sharing in the service process it was quick, and instigated dialogues and insights. If used by professionals from the specific roles, the accuracy and precision may increase. The group also concluded that expanding the canvas to incorporate more aspects of what the actors know, will make the canvas more complicated to construct, and more complicated to get an overview of. Making iterations over the canvas, and adding to the knowledge content might be a way of dealing with this, in the cases where more understanding of previous experiences, or professional knowledge is important to include.

Service Information Canvas as a synchron or a diachron technique

The canvas we first envisioned only as a diachron design technique. However, it also captures in an abstract and synchron manner the relationships between the different roles, in the sense that one can see and compare what the different actors know, not only how their situated knowledge develops over time.

Conclusions

In this paper we reported on the development and use of a canvas to document how the knowledge of actors depends on and develops through the events of a service process.

The Service Information Canvas was an effective tool, in combination with a role-play between people with different knowledge and backgrounds. The role-play was an ongoing prototyping technique, that gave access to important understanding of a service process, that later could be shared and documented in a definite and diachron technique; the Service Information Canvas.

In a service, at every point of co-creation, the actors need to act on the basis of information, the Service Information Canvas makes it possible for designers and developers to understand these realities, and to make good design decisions.

Acknowledgments

We wish to acknowledge the workshop participants, as well as the companies involved in the prototyping project, ABB, Volvo and Ericsson. This project, ACTION, was funded by VINNOVA, project nr 2013-00917.

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Blended spaces, cross-channel ecosystems, and the myth that is service

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Abstract

Service design and service designers have changed the way many companies and organizations think of their service offerings in relation to their overall goals, expanding their view of when a service experience starts and ends. However, this is still a company-centered view, eminently postmodern and unavoidably reductionist in nature. There is still room for growth within the field and in the way services are designed. This paper argues that a systems thinking approach positing multiple interrelated perspectives might be beneficial for the service design practice. Shifting focus from the single touchpoint to the global structure of the ecosystem and hence altering the way the problem space is framed, service design practice can gain a significant strategic impact and provide value to both individual actors and organization.

KEYWORDS: systems thinking, cross-channel ecosystems, blended space, information architecture

Introduction

In 2004, describing the changes from the linear sequencing of the industrial age to the interwoven nature of the network age, William J. Mitchell wrote that “Once there was a time and a place for everything; today, things are increasingly smeared across multiple sites and moments in complex and often indeterminate ways” (Mitchell, 2004, p. 14).

A decade later, affordable, mobile, consumer-grade computing has become mainstream: smartphones, tablets, sensors, ambient appliances, and wearables allow human-information interaction everywhere, all the time, turning products into services or parts of services (Resmini & Rosati, 2009). Digitization and constant read/write access to information have blurred the distinction between products and services: as Norman argues, “the point of a product is to offer great experiences to its owner, which means that it offers a service” (Norman, 2009).

As services are experienced across a multitude of channels and contexts, the importance of acknowledging complexity in the service design (SD) process has grown significantly: this notwithstanding, the myth that the service designer can design a perfectly bounded artifact and simply drop it in place within a dynamic environment still holds at least in the practice. While there are obvious benefits in focusing on the specific touchpoints of a service and in transforming what amounts to a complex experience into a much more linear journey, control being one, there are also risky trade-offs, mainly those of abrupt simplification and reductionism.

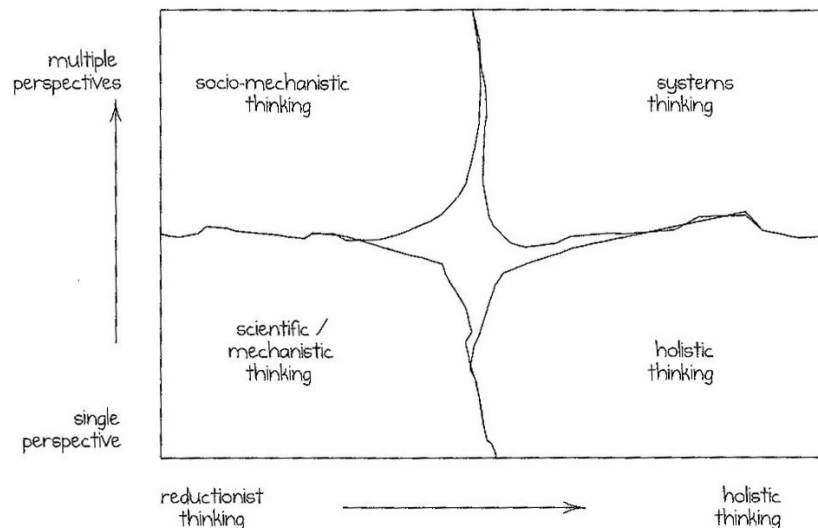


Figure 1 Systemic vs holistic thinking (Armson, 2011)

This paper aims to initiate an interdisciplinary conversation to move out of this conceptual impasse by introducing an approach based on the theoretical lens of systems thinking and by suggesting a perspective shift in the SD practice from a holistic approach to a systemic approach. Where the former adopts one single perspective, the latter considers multiple perspectives at once, acknowledging that the design process does not center around the choice of a single optimal point of view but rather around conscious movement between different perspectives in order to attain a better and more complete understanding of what is being considered (Armson, 2011), which in our case is not a “service”, but rather a cross-channel ecosystem in blended space.

Cross-channel ecosystems in blended space

Cross-channel initially identified a modality of service delivery where “a single campaign” was conducted “with a consistent message (...) coordinated across channels” (Dietrich, 2009). It was then introduced to information architecture (IA) (Resmini & Rosati, 2011) to describe the changes occurring in the design practice in connection with the mass penetration of portable devices, the general availability of mobile broadband, and the expansion of a read/write culture of actors constantly co-creating information.

At the heart of this approach to design is a systemic view that ties together actors, activities, and individual goals into ecosystems. More formally, a cross-channel ecosystem is the result of actor-driven choice, use, and coupling of channels, either belonging to the same or to

different systems, within the context of the tasks, goals, and desired future state actors intend to achieve, explicitly or implicitly. Cross-channel ecosystems are semantic constructs that straddle digital and physical spaces, instantiated by individual actors moving freely and at will between locations, devices, and contexts.

Cross-channel design is systemic in nature and pragmatic in scope. The design process shifts its focus away from the precise attention usually accorded to a single artifact, product or service, and concerns itself instead with the global structure and dynamics of the ecosystem. It identifies a blended space of opportunity for the designer to intervene in, more than a finite artifact that can be fully or wholly designed.

This is a radical change, reflected in the practice as “build-what-you-can” methodologies that stress how an understanding of the ecosystem does not lead to the redesign of it, but rather to a pragmatic intervention to maximize social or business opportunities and minimize individual or organizational pain through a recast of one or more specific channels or touchpoints (Benyon & Resmini, 2015).

Interventions within an ecosystem broker between the different instances presented by the ecosystem itself, the actors, and the designers’ own vision. The blended space that is the result of the actors’ activities and their joining of individual channels for a specific goal creates an emergent structure and introduces a loss of control on the side of the designer and the organization that goes beyond the traditional participatory or user-centered perspectives. This presents a major challenge to the design process that the current practice of SD does not fully address.

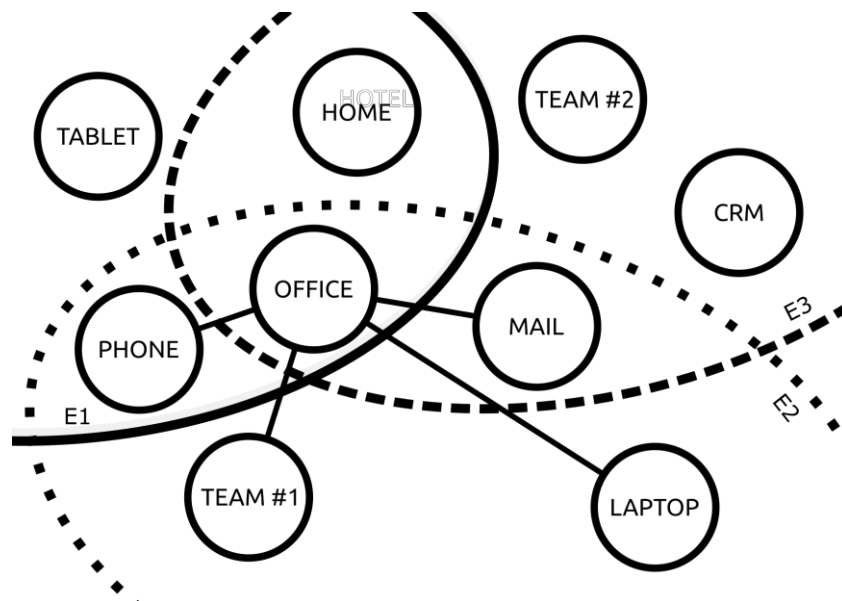


Figure 2 Cross-channel ecosystems (Benyon & Resmini, 2015)

A cross-channel approach has been successfully adopted for the design of such diverse systems as the environment of a national art gallery (Resmini, 2013) and the customer experience for outdoor recreation gear and sporting goods retailers (Tate, 2011). Figure 1 illustrates prototypical channels and touchpoints belonging to three different overlapping ecosystems, E1, E2, and E3, the result of individual instantiation in the context of workplace activities. An actor accomplishing tasks from the office in collaboration with team #1 using a laptop, mail, and phone communication would be concerned with the E2 ecosystem only.

The idea of blended spaces originates with Imaz and Benyon (2007), who initially applied Fauconnier and Turner's conceptual blending (2002) to the study of human-computer interaction and software engineering. Benyon formalized blended space in 2014 as a space "where a physical space is deliberately integrated in a close-knit way with a digital space" (2014, p. 79), creating a new type of space with its own emergent structure and its own novel user experience predicated on a different sense of presence. The idea of blended spaces has been applied to the domain of digital tourism (Benyon et al, 2013) and to the design of meeting rooms (Benyon & Mival, 2012).

Together, the two formulations offer a comprehensive framework to approach the design of complex experiences from a systemic, non-reductionist perspective (Benyon & Resmini, 2015). Cross-channel design identifies primarily a designerly response to socio-technical change and can be read as a superset of Benyon's conceptualization of blended spaces: as actors interact across multiple channels and locations, a blended space spanning contexts, devices, and locations is articulated through an ecosystem of channels where constant read/write access to a continuous personal stream of correlated information blends individual physical and digital artifacts into complex ecosystems that affect all sorts of everyday activities, from education to healthcare, from traveling to shopping.

These ecosystems also transcend the traditional limit encountered by SD practice: as much as this latter considers primarily organization-bound and organization-controlled systems, the former fully embraces unbounded experiences and the computer-derived textuality of haphazardness, evanescence, and anonymous, multiple and social authorship of today's digimodernist allure (Kirby, 2009, p. 59-60).

Cross-channel ecosystems are service supersets, unbound, actor-constructed, and transient. While the traditional object of an SD investigation could be the Netflix service ecosystem and its multiple touchpoints in order to provide users with the smoothest experience possible within the Netflix walled garden, in a cross-channel investigation the Netflix service could be a piece of a larger "watch movies" activity that also involves supporting services such as IMDB, competing services such as a local cinema, and ancillary services such as broadband internet access or a home pizza delivery service. Attention is devoted to the interdependencies of significant existing, available, or unused elements in the actor-constructed ecosystems, regardless of whatever company-owned service they belong to.

Service, service system, and service ecosystem

Services as single entities are usually described from two different perspectives: in terms of what they do, that is if they enable other service interactions or if they enhance a service experience (Grönroos, 2007; Vargo & Lusch, 2008); or by reflecting on the different pieces that said services consists of, that is to say the specific touchpoints, actors, or servicescapes (Blomkvist, 2014).

However, focusing on what something is intended to do or on what something consists of, even if attention is given to the dynamic interplay of the constituent parts, entails in the end a reductionistic way of framing the problem at hand. Although SD as a field and as a practice has certainly matured, we argue that its approach fails short and its usefulness is greatly diminished when it comes to capture both the complexity and emergent nature of most of day-to-day activities, and the actor-driven unfinished onwardness of much of the information ecosystems we deal with today.

A service, or parts of it, can always be repurposed by actors as part of larger ecosystems: for example, healthcare and all of its ancillary services constitute a major superset whose boundaries are, as for all systems, arbitrary and depending on actor needs and objectives. Within the superset, parallel services might be competing directly or indirectly, as is the case for YouTube, cable TV, Amazon Video, and Netflix if we consider again a “watching movies” activity.

In this example, these services constitute what service marketing literature calls a service ecosystem, consisting of the combined resources of several service systems through the combined actions of its actors (Vargo & Lusch, 2011). The boundaries of the ecosystem are determined by the combined view of the interconnected service systems and the socio-historical context that guides the interactions and value determinants within the specific context (Akaka & Lusch, 2013). In this case, what we as collective of individuals consider to be entertainment, watching movies.

Implications for research and practice

The conversation revolving around services and the design thereof has mostly concerned itself with what they are in terms of their parts, or with how and how much they differ from products. As a result, unquestionable progress has been made in the design of services as a collection of related and relatively static artifacts, the touchpoints. However, we regard this approach as eminently postmodern and unavoidably reductionist in nature: a way of framing services which is inward-focused, artificially organization-bound, generally neglecting the real-world usage patterns employed by actors to reach a desired state, and falling short of accounting for the resulting complexity. This is the myth that is service, one of change and distance: under the illusion of completeness, services are designed within the same constraints and under the same assumptions that products are.

We argue that for a service to be successfully implemented a systemic approach needs to be in place. As Armson writes, “Systems thinking does not (or should not) claim superiority to other thinking styles but acknowledges the power and limitations of each” (Armson, 2011, p. 51). The systemic designer intentionally moves between different thinking modes in order to obtain new insights and carefully examines the channels and touchpoints at the periphery of an ecosystem, those which might play a conflictual role or which are by and large ignored.

Conclusions

Even though SD has fundamentally changed the way many companies frame their offerings relative to their overall organizational goals, there is room for growth within the field and in the way services are conceptualized and designed. A shift in perspective is also necessary to account for the increased level of control that has passed in the hand of individual actors.

This paper suggests that a way to move the conversation forward is through a systems thinking approach and the conceptualization of cross-channel ecosystems as formalized in IA. By altering the way the problem space is framed, SD practice can gain a significantly larger strategic impact and provide value to both individual actors and organizations. Instead of focusing on the touchpoints used in a specific sequence by a generic consumer, a cross-channel approach suggests that the aggregated number of journeys and their interplay should

be considered, shifting away from reductionistic solutions targeting the service journey only, to consider both organizational concerns of service providers and the autonomy of actors that choose channels and engage with services within a larger, complex ecosystem.

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Exploring the pupil-student transition through customer journeys

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Abstract

Being a first time student is not only exciting, it is also like travelling to a new and far-off place. If you are already a resident, then it is hard to grasp what it was like arriving for the first time. This paper presents a project at Karlstad University investigating the experiences of first time students. 13 students from the teaching programs kept diaries for ten weeks concerning their experiences related to the first time at the university. The findings suggested, for example, an overload of information on the first day, a complex web structure, and highlighted the importance of social connectedness as well as the importance of designated facilities to help the students find stability and to focus on their studies. The project suggested low hanging fruit that could be fixed immediately and formulated new areas to be investigated and developed. Further, the information visualizations showed important in order to get things done.

KEYWORDS: case, student, university, customer journey, experiences

Introduction

Starting university level education involves getting accustomed to academic habits and structures, and taking full responsibility for your own studies. In addition, the student has often moved to a new city, doesn't know the campus and has little or no prior knowledge about the expectations of academic life. Admitting new students at a university implies having control over who starts what program, when and where. Administrative routines involve a combination of systems that include registration and teaching, and other different functions at the university. This case description explores how a service design project was initiated to connect the administrative systems with the experience of being a first time student at the university.

Karlstad University (KAU) is one of the youngest universities in Sweden, with approximately 16 000 students enrolled in humanities and fine arts, social and economic sciences, natural sciences, engineering and technology, healthcare and teacher training. For some time KAU

had conducted a dedicated effort to improve how it welcomes first-time students at the university. The university's support functions had held several projects with the purpose of developing efficient and better solutions: from the student, teacher and administrator's perspectives. However, overall experience was that too often the "customer perspective" was missed and that the solutions became isolated from each other and were not part of a whole. The person responsible for incoming students began to look for approaches and methods that could include students' perspectives.

Service design is considered to be an approach that brings an outside-in perspective to an organization (e.g., Stickdorn & Schneider 2010). Further, there are specific tools that are helpful in capturing, analyzing and communicating the users'/customers' experiences. The ambition in this case was to explore methods of service design as an outside-in way of working, and if possible to appropriate specific methods for continuous use within the organization. Customer Journey (CJ) was selected as an appropriate technique for communicating customers' experiences through visual output (Parker & Heapy 2006; Zomerdijk & Voss 2010; Segelström 2011). In-depth and qualitative user research is needed to construct a CJ.

With the ambition to include and understand the student experience from an outside-in perspective the project "Follow a student" using a service design approach was initiated during 2014. A project manager with background in service design was appointed (the first author). Parallel with the pilot project initiated by the administration, the issue of student experience at KAU was brought in as a case-project in the courses User Innovation I (15 erts) and User Innovation II (15 erts) on advanced level fall term 2014 (held by the second author). This paper focuses on the pilot project.

In the following sections, how the project was carried out will first be presented, followed by the outcomes,, then further reflections on critical issues in the process will be discussed and the paper ends with a conclusion that includes implementations and future work.

A case study of beginner student experiences

The purpose with a CJ is to get an understanding of the service from the customer's -- in this case student's -- perspective. Thus in-depth and qualitative user research is needed to construct a relevant CJ. Since this project set out to understand the experiences of first year students it was important to start on their first day at the university, although the overall experience might be related to the previously completed acceptance procedure, which was part of the student project. The plan was then set out to collect their experiences for ten weeks, the first half of the term, in order to be able to collect data from the first day to the first examination. Stakeholders in the project were representatives from the administration, the marketing department, the university board, and the User Innovation I and II courses.

A combination of qualitative service design research methods were selected with the purpose of gaining increased knowledge about the students' experiences. The initial plan of shadowing students was discarded, instead the participants were to keep diaries, take photo/videos of their contexts and experiences to document and share their first term at KAU. After the first ten weeks, an individual interview with each participant was planned.

The project manager (??) met with the students on their first day and told them about the project and how to write their journals and document with photo/video. The instructions were based on the aim of putting the results into a CJ. “Write daily and not too long. Perhaps not unlike a Twitter post.” The posts were to be sent to the project manager on a regular basis.

Pre-interview analyses were conducted based on the diary entries. The participants’ individual CJ were constructed representing each participant’s experiences of becoming a student. The CJ was used as visual support in the interview, to create focus on specific experiences and make the interview more detailed.

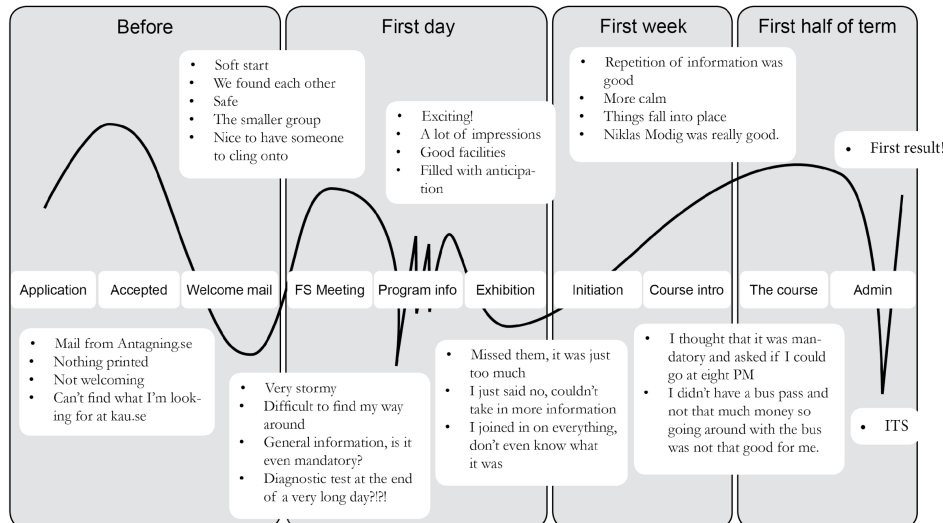


Figure 1 Common student customer journey of first 10 weeks of study

After the interviews and a meeting with the course responsible person for the student project a final synthesis of the findings was conducted. Placing the CJs side by side showed how a single experience could change the direction of an entire journey. The visualizations also showed that the participants had similar experiences at similar points in time and thereby it was possible to visualize a common journey (Fig 1). Three common experiences described how stressful the first week was, the importance of fellow students, and how the learning platform (ITS) proved to be problematic at times.

Project outcomes

The CJs clearly visualized the areas of improvement, which were both small and more complex issues affecting an entire CJ. The CJ highlighted particular experiences, such as when one student needed to cancel taking an exam due to illness but found no information on how to do this. Both individual and compiled CJs were presented to the university management. The visual strength in the CJs became very important in communicating the project results. One example was the strength in portraying individual experiences and their impact on the student’s performance. There were also more general issues, for example when looking for information on the website many participants commented on how the information structure got in the way of finding what they were looking for, and how they instead used Google search to find pages at the university website.

Direct outcomes included suggestions for improvements in the admission and information letters, the amount of information given in the first day and how to communicate in case of

illness the day before an exam. More complex issues pointed out were, as mentioned, the information structure at the website or more indirect issues of having a sense of belonging from the beginning, together with understanding what is expected.

Throughout the project participants mentioned the importance of feeling safe and being able to focus on their studies. Mostly participants mentioned this on a positive note. However, one student who missed the introduction due to illness instead mentioned how the lack of safety early on had an impact on the customer journey.

Different teacher programs in various premises were represented in the study. Related to the importance of feeling safe, it seemed like those who had an appointed place to go to could better handle the anxiety of not understanding what was expected of them. In this place there were second year students that they could ask about things that caused anxiety. For students who did not have a steady facility, the study group was identified as a very important factor in their experiences, whereas the study group was less important for the group that had fairly high self-esteem, low anxiety, and also had group rooms booked by their teachers.

Another individual finding was that some of the students worked in parallel with their studies, and studying was not taken as seriously as working. For this reason, the level of stress increased when studies and work clashed.

Reflections and discussion

Throughout the work several issues are worth reflecting on. Although the deliverable was tied to a customer journey, presenting the general customer journey for stakeholders had a larger impact than anticipated. The visual effect of showing different problem areas was so powerful that many initiatives since have used the customer journey when arguing for change, i.e. budget.

Selection of participants

The ambition to have a more homogenous group of participants was helpful in the project. The experiences are still individual but comparisons could still be made. The downside to trimming the group was that the results and the conclusions were limited to this. However, the results from the projects in the courses User Innovation I and II where a more heterogeneous group of students were researched confirmed the broader relevance of the results.

Method/process learnings

Having the start-up meeting of the project just before the program introduction was done intentionally in order to have as little effect as possible on the participants. However, the start-up meeting gave the students something that they would not have had without it - each other. This gave them an added feeling of safety that they would not have had without it. It is impossible to know how this influenced the result, however since the importance of a social context is one of the findings, it is most likely that it has been a positive experience for the students.

The project manager's lack of knowledge of "how things work" at the university had the effect that things were not taken for granted and on the contents of the follow-up questions.

When one of the participants had difficulties with understanding what was expected, it was still difficult not to give suggestions on how to solve the issue but instead exploring how the students themselves solved the situation.

In regards to the diary method, the participants were asked to write short daily posts, short enough to be compared with Twitter posts. The reason for this was that the participants should not feel that the quality and length of the texts could act as a barrier. However, for one participant the very short posts instead became the hindrance, and the participant who wrote every day had a lower quality in findings due to the lack of space for reflection. Unrestricted length of the text with a medium frequency proved to give the best results, especially when combined with the interviews.

In a similar way the instruction to produce images freely created a performance anxiety and thereby resulted in no images, whereas a clear task (picture of best / worst experience) resulted in a variety of images that depicted some of the findings really well. The images were accompanied by a reflection or description. The images together with the customer journeys also proved to be a good way to invite stakeholders to quickly understand the result of the study.

Conclusions

The purpose of the project “Follow a student” was to create a pilot project to explore beginner students’ experiences, from a student perspective. It aimed to improve the administrative function’s preparedness to welcome new students.

The outcomes show that this limited and qualitative project provided insights on several levels: some of them easy to address, others more complex and demanding proper development projects. At the moment there is no need to repeat the project at a larger scale; instead a similar project is now being conducted with the complementary aim to explore the teachers’ experiences. The customer journey technique proved useful both as a means of communicating the students’ experiences as well as a means to enhance the quality of the interviews during the research phase. This case description has described in some detail what kind of information is relevant to include, and how the information might be collected in a service design project.

Further, the project has pin-pointed that the student experience is influenced by many different things and as such can not be controlled only by administrative routines but needs attention from all functions at the KAU campus.

One of the major overall outcomes of the project was the power of the information visualization through a CJ. The student journey was immediately understood, and areas for development were clearly identified. The outside-in perspective brought via the service design way of working surfaced questions and problems that had not been seen before due to a deeper understanding of how the university works and where to go for answers.

Implemented and Future works

Following this study a number of issues have been attended to by Karlstad University such as increasing the number of mentors that take care of the students when they first come to the university, and adding an email address to use if one falls ill the night before an exam. On a larger scale, a project has been initiated to review the information structure of the website.

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Service Pathway: a Case Study of Business Model Design in Healthcare

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Abstract

Care pathways are used in hospitals to manage the decision making and care processes across medical specialities. The latest innovation in hip replacement is a care pathway that enables a patient discharge on the day of surgery. While the clinical attributes have been well researched a detailed understanding of the organisation is missing. We apply business modelling to create an organisation model of the care pathway and translate the embedded knowledge to other hospitals. A case study was conducted of the outpatient THA care pathway at a teaching hospital in the Netherlands. We present two visual models of the critical phases of the care pathway, with which we add the organisational attributes to support adoption of the innovation to other hospitals. Designers design business models for services. However more examples of practice are needed to contribute to the knowledge base of business modelling toolkits. In this paper we apply business modelling in the domain of healthcare.

KEYWORDS: business model design, visual modelling, service pathway, healthcare, hospital, hip pathway.

Introduction

A model represents a simplified reality, allowing us to manage complexity and to reason accordingly (Simon, 1990). Models communicate visually and contain a message for the user. They are able to transfer and translate knowledge across organisational boundaries (Carlile, 2004). Visual modelling emerged in the design community where designers think and communicate in a visual manner and translate abstract requirement into concrete objects such as 2D & 3D images and physical objects (Goldschmidt, 1994). Visual modelling is a part of the intellectual skill of designers, representing the sketches and drawings of design solutions. The skill is mastered on design schools and remains part of the designer's ability throughout their professional career. In practice, designers widely utilise visual modelling and

also trust on this capability when entering a service context (Segelström, 2009). Reflections on these experiences made apparent that the design of business models behind the services appeared to be within our field of expertise (Simonse, 2014). However more experiments and examples of practice are needed to contribute to the knowledge base and sophisticate the tool kits of business modelling. In this paper we apply business modelling in the domain of healthcare with the design of a care pathway model.

Business Model Design

Business models describe how *value* is created and delivered (Teece, 2010). We utilise this concept in order to capture the *value exchange* in the design of service pathway models and depart from the definition of a business model by Amit & Zott: 'A business model depicts the content, structure, and governance of **transactions** designed so as **to create value** through the exploitation of business opportunities.' Amit & Zott (2001, p.511).

The content represents operational information or goods that are being exchanged, the structure specifies the parties (network of actors) that participate in the exchange, and the governance considers the ways in which flows of exchange are coordinated (Amit & Zott, 2001).

Models represent reality on different levels of analysis. Business models represent a simplified reality of value networks, a meso level, depicting how an organisation creates and delivers value (Chesbrough & Rosenbloom, 2002; Johnson et al., 2008). Our research dives deep into a micro level of analysis involving the design of a care pathway model in a hospital organisation.

Network of actors

The network of actors is the key element in business model design that enables the value exchanges, collectively the actors account for the value creation in the model (Amit & Zott, 2001). The network consists of different partners across organisational boundaries who are linked by value exchanges (Zott & Amit, 2010). The persons representing the partners are the actors in the network. Our research focuses on the organisational network of a care pathway, actors connected by value exchanges spanning organisational departments.

Value exchanges

Figure 1 shows an example of a value exchange. Two actors participate in the exchange (patient, physiotherapist). The patient discusses his or her expectations regarding recovery after surgery with the physiotherapist. The physiotherapist informs the patient about the rehabilitation procedure and provides advice on how to prepare adequately. The transaction enables the physiotherapist to understand the patient's needs in order to provide the right care. The patient gains insight into the rehabilitation procedure and preparation. A value exchange consists of the transaction content and the value attribute. The content relates to what is transacted in the value exchange, as displayed in the centre of Figure 1 (blue icons), and consists of elements such as forms of information (Table 1). The value attribute represents the reason why the transaction takes place (Figure 1, orange icons). Value exchanges are bilateral, creating and delivering value to both participating actors.

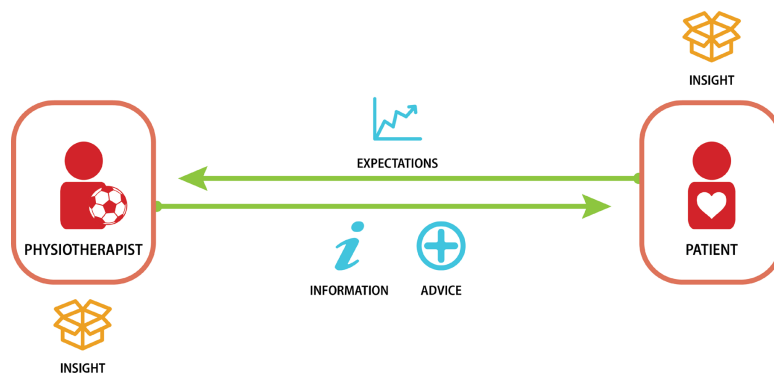


Figure 1 shows an example of a value exchange between two actors

Service Pathway: a one-day length of stay

Care pathways are widely used to manage the decision making and care processes across medical specialities within hospitals. The aim is to improve the quality of care, patient satisfaction, efficiency and reduce risk (de Bleser et al., 2006). A care pathway is a: ‘...complex intervention for the mutual decision making and organisation of care processes for a well-defined group of patients during a well-defined period’ (Vanhaecht et al., 2007; p.137).

In the field of total hip arthroplasty¹ (THA), fast-track care pathways are used that aim to give the patient the best available treatment in the shortest needed time by combining evidence-based clinical features and organisational optimisations (Husted, 2012). However, patients remain in the hospital for several days to recover.

The latest breakthrough innovation is an outpatient THA, a care pathway that enables a patient to be discharged on the day of surgery. The clinical attributes used by Hartog et al. (2013, 2015) are the same for an overnight and outpatient care pathway, but determining organisational changes are incorporated in the outpatient pathway. This has resulted in an intensification of the provision and organisation of care.

A shorter length of stay (LOS) is beneficial for patients. Hospitals also benefit from an outpatient THA care pathway as resources are saved and costs are reduced (Aynardi et al., 2014). The establishment of a fast-track care pathway does not ensure successful outcomes in itself, the successful coordination of the care activities and team is a crucial element (Husted et al., 2010; Kehlet & Wilmore, 2008; Maessen et al., 2007). A fast-track care pathway is therefore highly dependent on its model of organisation. Improving the organisational flow is considered to be an important future strategy to further optimise the care delivery in the pathway:

‘Strategies to improve the organisational flow may be warranted, even mandatory, for further improvement as waiting for physiotherapy, radiographs to be taken, crutches to be handed out, a surgeon to appear for discharge etc. may be barriers for early discharge when the functional discharge criteria are fulfilled’ (Husted, 2012, p.31).

¹ A surgery where the hip joint is replaced.

Despite the acknowledged impact of the organisational aspects of a care pathway on reducing the LOS, little research exists on how a care team and care processes should be organised to optimise LOS in THA care pathways. The clinical attributes are well researched, but a detailed view on the facilitating organisation is still missing. We bridge this gap with the design of a visual care model to provide insight in the organisation of the care pathway depicting how the care team and care processes enable a patient discharge on the day of surgery.

Design of the care pathway model

In this study we investigate the organisation of the outpatient THA care pathway and add to its clinical attributes the organisation attributes in order to support adoption of the innovation to other hospitals. The research questions that guides our investigation are:

What is the optimal design of the outpatient THA care pathway model for Hip Cure to communicate to other hospitals?

We apply business model design as a designerly practice to design a care pathway model of this healthcare innovation, we term this care pathway model design.

As designers we apply business modelling as a designerly practice to design a visual care pathway of the outpatient THA care pathway, we term this care pathway model design. The care pathway model serves to represent the organisational reality and to translate the embedded knowledge of the outpatient THA care pathway to other hospital organisations and facilitate its adoption.

Method: Case Study Research

In order to design a care pathway model a detailed understanding of the outpatient THA care pathway is necessary. A single embedded case study research method is applied. Allowing us to gain insight in the organisation of a complex care system (Yin, 1999), while retaining the holistic and meaningful characteristics (Yin, 2009). While coding is the common approach for qualitative data analysis (Charmaz, 2006; Eisenhardt, 1989). We employ a visual business mapping tool kit as it is 'particularly attractive for the analysis of process data because they allow the simultaneous representation of a large number of dimensions, and they can easily be used to show precedence, parallel processes, and the passage of time' (Langley, 1999; p.700). The graphical representation of our care pathway model is an abstract conceptualisation, an intermediary step in order to construct a theory.

We selected the Reinier de Graaf hospital because it is the only hospital in the Netherlands that employs an outpatient THA care pathway, and were the first European healthcare organisation to publish about such a pathway (Hartog et al., 2015), consequently it is considered a unique case (Yin, 2009) to study. The Reinier de Graaf hospital is a large teaching hospital and provides care to several hundred thousand patients annually. Seven orthopaedists operate at the hospital, one of them performs the surgeries in the outpatient THA care pathway. Between 1 April 2014 and 30 October 2015, 100 patients were discharged in an outpatient setting

For data collection, 16 semi-structured interviews were conducted to map the value exchanges within the care pathway. Standard interviewing techniques were incapable of collecting a detailed image of the value exchanges in a complex network structure. A visual care model toolkit was developed to aid in mapping the value exchanges, the toolkit is a modification of the toolkit by Arts-Posthoorn & Gedde (2014), and has been used in the design of a pre-care e-health service in Meeuwen et al., (2015). The toolkit visually maps the value exchanges that take place and acts as inspiration to uncover implicit information, the toolkit also structures the story of the interviewee and creates consistency in the different interviews.

Care Pathway Design

We present two models of the most critical phases in the outpatient THA care pathway: diagnosis & preparation (care phase 1) and mobilisation & discharge (care phase 4). The models are a visual representation of how the care pathway is organised to enable a discharge on the day of surgery. The models depict the network structure of actors connected by value exchanges (Figure 1) and are critical in enabling a same-day discharge from an organisational perspective. The value exchanges are visualised in the models but are not defined in a table due to size restriction.

Model #1 diagnosis and preparation phase.

The pathway model design of the first care phase visualises the network of actors and value exchanges concerning the diagnosis of the patient and preparations needed for the admission, surgery and recovery of the patient. Figure 2 shows the as-is care pathway at the case hospital (left) and the design (right) side by side. The visual differences are the direct result of the optimisations that have been incorporated in the design. The design involves nine actors (reduction of two) and a total of eight patient centric value exchanges (reduction of two). The critical organisational attributes of this phase are: patient preparation (mental and practical), patient education, aligned care team and efficient sequence of value exchanges.

The design removed value exchange problems and inefficiencies that exist in the *as-is* care pathway. In the *as-is* situation patients are educated by an orthopaedic consultant on two separate occasions and during a group education session. The content of these exchanges unnecessarily overlap and waste valuable resources. For this reason, the group education was removed and the orthopaedic consultant has been replaced by an intake nurse. The intake nurse now conducts the medical anamnesis. The education of the patient is realised by the digital patient information application, which provides the patient with the right information at the right time in order to prepare and educate the patient sufficiently for discharge on the day of surgery. The scheduling of the day of surgery is embedded in the patient application. At the case hospital the ward doctor is also present at the outpatient clinic which is not self-evident. To create a more generic and clear model the ward doctor has been replaced and its responsibilities are fulfilled by the orthopaedic surgeon (conducting the physical diagnosis) and the nurse (marking of patient's leg on the day of surgery).

Model #4 Mobilisation and discharge phase

The fourth pathway model design visualises the network of actors and value exchanges concerning the mobilisation and discharge of the patient at the ward. Figure 3 shows the as-is care pathway at the hospital (left) and the design (right) side by side. The design involves six actors (reduction of one) and a total of five patient centric value exchanges (unchanged from as-is). The critical organisational attributes of this phase are early patient mobilisation, flexible availability of the physiotherapist, functional discharge criteria, joint decision making and availability of the care team.

The design removed value exchange problems and inefficiencies that exist in the as-is care pathway. In the as-is situation the ward doctor rarely visits the patients at the ward post-operatively, because he or she has to be present at the outpatient clinic at the time the patient returns to the ward for recovery. The visit of a doctor is however very important and therefore the ward doctor and orthopaedic surgeon are merged into the role of doctor. A role that can be shared by multiple actors to ensure the patient is visited multiple times by a doctor; at discharge and once or more before that. This provides the doctor a better view on how the patient is progressing and will increase the patient satisfaction due to more quality contact with caregivers during a short stay at the hospital. Furthermore, the patient information application is added, enabling the patient to receive the right information at the right time.

Professional implications

The presented care pathway model is of interest for professionals involved in hip care pathways to gain insight in the organisational structure of an outpatient THA care pathway. This enables them to compare their own care pathway to the model and inspire their care teams to improve their own care pathway, to ultimately reduce the length of stay of hip patients.

Future research

As designers we use care model design to support the adoption of care pathways by providing insight in the organisation of the care pathway, showing what value exchanges take place and ultimately how value is created. The use of business model design in constructing a care pathway model was effective in gaining in-depth insights in the complex organisation of the care pathway at the case hospital. As designers we are used to make visual artefacts that minimise the communication boundaries with stakeholders, allowing us to properly discuss them with these stakeholders and continue development. The business modelling method had a similar role during the interviews and the development of the models, and is suitable for improving the organisation of care pathways in hospitals.

Conclusion

In this case study we investigated the organisation of the ground breaking outpatient THA care pathway. The models visualise the organisation of the care pathway of the two crucial phases: the *diagnosis & preparation* and *mobilisation & discharge* phases. The models show the network of actors connected by value exchanges, with which we add the missing organisational attributes in order to support the adoption of this innovations to other hospitals. The visual differences between the *as-is* and the *design* are the direct result of the optimisations that have been incorporated in the design.

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Designing the future, Engineering Reality: Prototyping in the Emergency Department

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Abstract

This case study covers the implementation of a live prototype aimed at addressing the issue of overcrowding at the emergency department (ED) of the Santa Maria Nuova Hospital (ASMN) in Reggio Emilia (Italy). It was facilitated by a team of service designers and management engineers from the University of Modena and Reggio Emilia (UNIMORE), and a working group of 15 professionals composed of doctors, nurses and auxiliaries. The live prototype involved the 150+ staff of the emergency department and over 3,750 patients over a period of 34 days. The end result of the service was a smoother patient flow that reduced waiting time by 38%, and had a patient satisfaction rating of 94% increased staff-patient communication. The service also carried negative effects on how doctor's viewed their professional identity, and caused stress due to uncontrollable noise limits.

KEYWORDS: service design, live prototyping, healthcare, emergency department

Introduction

Emergency departments worldwide face a crisis of overcrowding, which occurs when there are not enough resources to serve incoming patients. This causes stress for staff and patients, and increases the likelihood of medical errors (Willoughby, K., Chan, B., & Strenger, M., 2013). To solve this problem, the top-management at ASMN wanted to restructure the emergency department and formed an internal team of 15 doctors, nurses and auxiliaries in order to facilitate the project. However in order to avoid structural changes that did not support internal needs they also decided to call for a one-year consultancy from UNIMORE's service designers and management engineers. Our solution had to consider two constraints: no extra personnel and no major structural changes allowed.

Research and design



Figure 1 shows a doctor at his desk. The position discouraged patient interaction.

We embarked on an immersive 2 months of research, that involved in-depth contextual interviews with 15 staff, and 5 patients, and over 60 hours of observation inside of the emergency department, and extensive secondary research.

Our research began with standard observations and shadowing in ED's 4 main ambulatories, at triage, and in the waiting room. We discovered that the ED functioned off a closed room ambulatory system that meant that the nurses had to constantly go out of the ambulatory, into the waiting room and then bring patients back into the ambulatory, creating dead time. We also observed that the design of these rooms

discouraged doctor / patient interaction as the computers were placed in the corner. Doctors would get up to see the patients, and then quickly sit back down to write their reports.

Following the first phase of observation we performed stakeholders interviews with 14 staff workers, which included doctors, nurses, and auxiliaries of varied seniority. The stakeholder interviews were open ended, and sought to understand the different issues staff workers had while working in the emergency department. In interviewing the staff we discovered contrasting opinions. Some of them told us how being in a closed room made them feel cut off to the ED as a whole, with others saying that the privacy of an ambulatory was vital.

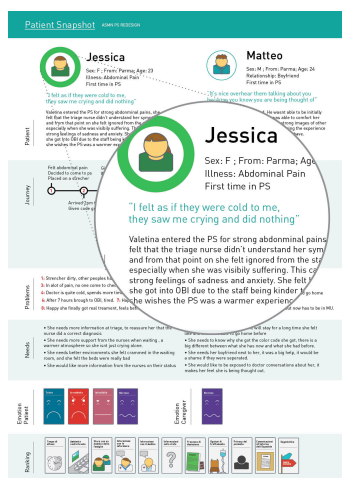


Figure 2 shows one of the patient persona pairs

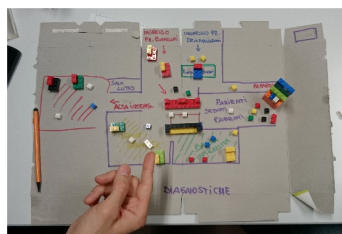


Figure 3 Nurse points to his prototype.

We also performed 5 in depth contextual interviews with patients who had already completed a full experience through the emergency department. We asked them to explain to us each step of their journey, and used emotion cards to understand the feelings they felt. We also had them rank the various parts of the ED experience most important to least, explaining why. The data from these interviews were synthesized into 'Persona Pairs' originally explored by Allison Matthews and Diane Klein (2013). While the sample size was low, specific patterns had emerged: we learned that the contact between the patient and doctor/nurse was the most important part of the experience. Also almost all journeys highlighted frustration with the waiting time and a 'cold' experience inside of the ambulatories with little contact by the doctor, confirming our observation. This research phase led to our major insight that the ambulatories formed an emotional and logistical bottleneck.

To come up with new solutions we organized a workshop with the 8 members of the ED staff. We created scenarios based on our user research and used them as the backbone of the workshop. This allowed participants to put themselves in the shoes of each of the user, uncovering subsequent needs. They then used these needs to brainstorm and rapid prototype new solutions.

We compiled these prototypes and findings and elaborated them into a presentation that was then shown to the entire internal working group. Together we decided to attempt one of the

prototypes entitled “abbattere le barriere” translating to “breaking down the barriers”. The prototype targeted low acuity patients who made up the highest percentage of inflow, and are a main cause of overcrowding (Liu, S., Hamedani, A., Brown, D., Asplin, B., & Jr., C., 2013). The service moved doctors and nurses out of the ambulatories and into an open space together with the patients. This was a radical change: rather than sitting at a desk with a computer waiting for the patient to come to them, doctors would be on their feet with a mobile laptop going to the patient. This would mean that the doctors and nurses had to work next to the waiting patients, giving them more flexibility to rapidly treat them. It also meant that doctors would work side by side rather than individually in a room, giving them the chance to quickly get a second opinion whenever they had doubts. Seeing the staff work also would help reduce patient frustration as they could visibly see the process. The space would address both the logistic problem of the closed ambulatories, but would also be a more interactive space for patients.

Live Prototyping: “Breaking down the barriers”

In a context as dynamic as an emergency department, we knew prototypes such as service re-enactments would not fully explore all of the possible problems that could occur. In order to understand if this service would work we needed to design a live prototype, which differed from a pilot as it would need be iteratively co-designed and adapted by the staff and patients using it.

Service prototyping in healthcare is a rarity, with very little case studies to base ourselves on. Many of the previous cases studied involved prototyping in simulation environments. Examples include cardboard prototyping which allowed participants to collaboratively design a space or service using low-cost and easily modifiable materials such as cardboard. While time-effective it was limited in its ability to replicate the variety of issues that could occur (Kronqvist, Juha, Heini Erving, and Teemu Leinonen, 2013).

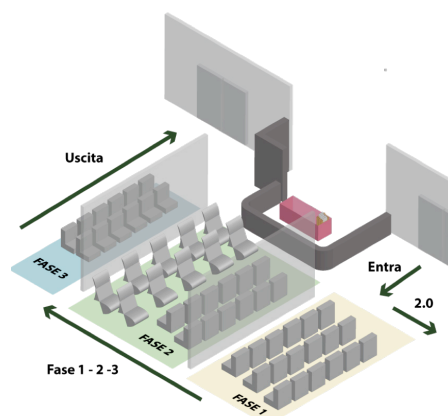


Figure 4 shows a 3d representation of the space.

Over the next three months we worked alongside the internal working group of ASMN and other internal offices at the hospital (Information systems, Structural office, Security office, and Management) on a week-by-week basis to co-create the live prototype. With the internal working group we designed a base service structure divided into 3 distinct spatial phases:

- » Phase 1: Doctor visiting phase, where patients would wait to be seen by the doctor
- » Phase 2: Treatment and exam waiting phase, where patients would wait for the results of their exams or receive treatment from a nurse
- » Phase 3: Discharge phase where patients would wait as they were awaiting discharge.

The service designer created several scenarios visualizing the patient experience, helping gain alignment on the overall service process. This also helped guide the hospital staff, present in the working group, to understand all the technical and organizational aspects that needed to be included.

Implementing the service would mean also having to design the space. The only space big enough to run the live prototype was the emergency waiting room however we realized transforming it into an ambulatory would reduce the amount of seating available. This made it necessary to restrict the area to only patients and meant that we needed to create a new waiting room just for the friends and family members. In order to understand the size that each phase needed to be, as well as the overall impact our prototype might have on the ED, the management engineers ran many data simulations using data from last year patient accesses. We also met with hospital architects and civil engineers several times, to ensure that our plan was respecting safety norms and to have their help designing and organizing the space the live prototype would be held. The service also required the creation of a new role called the process nurse who would oversee the flow of the entire ED and keep the family members informed. In order to make their work smoother we developed a tablet application to avoid the need of having them bring a laptop back and forth.

After creating the base space and service design we needed to ensure that the prototype was properly communicated to the entire ASMN community both internally and externally:

Internal communication: We communicated this prototype with the entire ED staff and other stakeholders such as IT department; architects from the planning department and top management from the hospital. These meetings were vital in anticipating potential problems in the proposed design. We emphasized that the design was flexible and that any element was open to be changed as the prototype went on.



Figure 5 shows a nurse and doctor communicating



Figure 6 patient doctor conversation



Figure 7 nurse working on a 'hack'

External communication: Communication also extended to the patient with specific resources made to ensure they understood what the service was. Inspired by the project A Better A&E by Lloyd Pearson (2011) we created brochures and signage that would explain to patients the concept of the service and what they could expect in each step. We also developed scripts for the staff to improve one-to-one communication with the patient.

To test our prototype we settled on a 5 week-long continuous experimentation. We developed a feedback strategy to be able to understand issues that arose during the prototype. This included daily observations and 'check-ins' with staff and patients to understand how the service was running. Every week meetings were held in which the group had to sum-up the learnings and then decide what to change in the prototype. These changes would then be communicated to the entire staff through emails and one on one explanations.

On April 22nd 2015 we launched the live prototype, deciding to run it until May 31st 2015. Throughout this period we conducted over 80 hours observation and encountered a variety of issues. As new problems would appear we would note how the staff themselves resolved the issues, intervening when needed. This interactive cycle continued every week over the course of the live-prototype. Below is a small summary expresses the change over 5 weeks.

Week 1: We realized that the activities of the process nurse were too much for one person to have. We also saw doctors silently uncomfortable with the open space, using dividers to 'hide' themselves from the patients. In the weekly meeting we decided to divide the work of the process nurse amongst the triage nurses. We also decided to continue having the doctors work in the open space suggesting to them to avoid the barriers as it blocked their view of the patients, which posed a safety concern. This was also done to see if they would become more comfortable as the experiment went on.

Week 2: We began to encounter problems with visitors not respecting the rules of the space, and taking advantage of its temporary nature by trying to speak with the patients across the barriers. In the weekly meeting, we decided to move the dividers the doctors initially used to hide themselves, inside triage to stop people from looking through. We also worked on scripts we could say in order to calm down family members.

Week 3: By the 3rd week the service was running well, however we started to encounter deeper issues with identity. Doctors began to tell us about how they understood the importance of the service but did not like working there, as all they saw were low complexity patients: they also wanted to work on higher complexity patients. We also saw that the technology we implemented for the test was causing us issues. The tablet and application we felt would speed up the work of the nurses who had to speak to family members in fact slowed them down. In the weekly meeting we removed the tablet from the experiment.

Week 4&5: By the 4th and 5th week most of the staff were used to the new working method. However the problem of noise was one issue that constantly presented itself and that we were not able to solve. Much of the staff were complaining that they were not able to concentrate because of it. Meetings in the last two weeks were dedicated to brainstorming ways to reduce the noise, to no avail. Because of this, we decided to stop with the experiment rather than continuing it, despite the positive outcomes.

Throughout the live prototype we also realized that one private space was not enough, and a second was needed. This forced us to create a second makeshift private space with dividers, that over the course of the 5 weeks was iterated upon to become less and less provisional. This need was one particular realization, that had the service been implemented without prototyping, would have potentially cost tens of thousands of Euros in restructuring costs.

Final Results

Overall we noticed better levels of interaction between the doctors and their patients, as they spent more time engaging in face-to-face conversation than in the old ambulatory structure. The final results of the prototype saw an overall 38% decrease in waiting time for the 3575 patients that entered the service despite seeing an 10% overall increase in the total number of patients that came into the emergency room during that time. We also saw a 22% decrease in total length of stay of patients. A random patient survey conducted with 36 patients inside of the live prototype also saw an overall satisfaction rating of 94%.

After the live prototype, we worked with the hospital architects to design a final spatial blueprint that addressed the needs that emerged from the co-created space. We presented this blueprint back to the entire ED staff in a plenary meeting, where we collected final feedback on the design. Main changes included: 1) Removal of phase 3 (discharge phase), as it was often underutilized by the staff that they felt it was not useful. 2) Creation of two additional flexible 'pod' private ambulatory spaces. 3) Both the issue with noise and doctor

identity were addressed with proper soundproofing and a continuous scheduling effort to ensure doctors aren't overly exposed to the working the new service. As of the beginning of January 2016, funding to realize the service has been found and the final service is due to be implemented by the end of 2016.

Conclusion

The live prototyping methodology allowed us to truly test a complex service that was co-designed with ED professionals around their needs. These weekly change-decisions helped ensure that even though this was a dynamic service prototype, staff knew that any big changes would occur weekly and not randomly. This simple rule allowed us to:

- » 1) Live test in a safe and ordered way, to minimize change management issues. The entire staff knew how and who to contact in case of issues, and we made sure to make the process as transparent as possible.
- » 2) Turn staff who often would be either the most reluctant or most vocally dissatisfied into proactive professionals, involving them in the co-creation of new service solutions.
- » 3) Scale up the small changes or 'hacks' that we saw staff do in their day-to-day work.

By observing and reporting best practices to the internal working group, we were able to make sure that everyone learned and adopted these solutions. We suggest that this method is particularly useful in case of complex service prototypes, when there are too many interconnected variables that can affect the end user experience. It is also effective when the prototype requires a significant change of mindset.

Limitations

Limitations arose from patient feedback, as the number of interviews completed were not enough for the satisfaction rating to be statistically valid. Also due to the complexity of the prototype, it was difficult to isolate the impact of its individual aspects such as the spatial flow, working methodology, or the service scripts. So while the overall impact was positive it was hard to measure how positive or negative these individual aspects were.

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Embedding design in a mental health network

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Abstract

Service Design in Mind (SDiM) is a programme run by Mind, the national mental health charity. The programme aims to embed service design techniques and methods into a network of local voluntary organisations that deliver mental health services. This case study describes how the programme, based on the idea that everybody designs and everyone can be a designer, aimed to create a diffused design culture (Manzini, 2015) across the charity and its network. By capitalising on existing internal design expertise and sensibility, Mind developed a bespoke design approach and a set of resources, as well as skills and capabilities to improve and transform mental health services.

KEYWORDS: service design, mental health, embedding design, voluntary sector

Introduction

Mind is a federated charity that aims to improve the mental health and wellbeing of people living in England and Wales. They operate at a national level by providing advice and information to people experiencing mental health problems and campaigning for better public services and support. At a local level, they support a network of around 150 local Minds who are independent charities in their own right. The local Minds are of varying sizes, ranging from a few thousand pounds in turnover, to a few million pounds. As independent charities operating in differing localities, the services they provide, although all aimed at improving mental health and wellbeing, also vary widely.

Despite this variance, a significant proportion of local Minds' funding comes from delivering local NHS and local authority services. Recent public sector reform (HM Government, 2010) in the UK has therefore had a significant impact on the local Mind network. It has posed the difficult challenge of how to meet complex service user needs, and evidence that those needs have been met, with restricted budgets. In 2013, recognising the unprecedented changes impacting on its network, Mind began to look into new approaches that would

support local Minds to meet their organisational aims in new, innovative ways. The increasing use of design in public sector and mental health contexts (for example, the use of design in the Lambeth Living Well Collaborative), as well as a local Mind's successful experience of using service design to rethink their offer (Warwick, 2015) led the team to consider the benefit of a design-led approach.

Based on the principle that everyone has the capacity to design (Manzini, 2015), Mind recognised that there would be latent creativity across the network that they could cultivate, but that the mental health expertise and lived experience of its staff that was crucial to applying the approach effectively could not be so easily replicated. As a result, a programme was developed in collaboration with local Minds and design agency Innovation Unit to create a *diffused design culture* (Manzini, 2015); embedding design methods and techniques throughout Mind's work.

This case study will describe the prototyping of the Service Design in Mind (SDiM) programme: testing the relevance and applicability of a design-led approach to the Mind network and developing a Mind-specific design methodology and set of resources. It will also detail the programme's outcomes to date and the strategy to share and scale the practice across the 150 local Minds.

Prototyping Service Design

As Mind wanted to capitalise on the existing design capabilities of its staff, the SDiM support and resources needed to be as useful and relevant to local Minds as possible. To do this, staff from across the organisation were brought together to explore their current methods for developing services and explore a range of different design processes, in order to extract the principles and requirements for a Mind-specific methodology. Innovation Unit used the insights gained at this event to create a SDiM Methodology with five phases (see Figure 1), where the output of each phase powered the design activity in the next one.

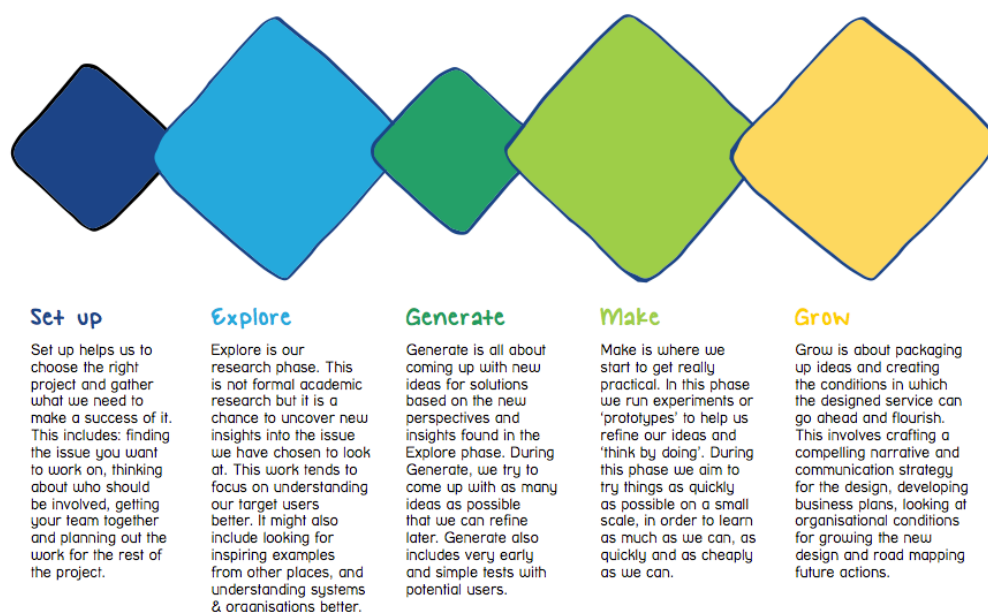


Figure 1: SDiM Methodology Phases

The SDiM Methodology draws on the Double Diamond process (Design Council, 2005) and

its convergent and divergent thinking modes, but is bespoke to Mind for several reasons:

- » *It has two additional phases.* ‘Set-up’ and ‘grow’ align to more traditional project management approaches, which are predominant in the voluntary sector. They help to guide local Minds on steps such as selecting the right team to work on the project and packaging evidence and pitching an idea to commissioners; stages that are crucial to local Minds but generally overlooked by the Double Diamond;
- » *It is a guided process.* It uses a step-by-step approach where service design practice, thinking modes, key concepts and language are introduced progressively, alongside language, contexts and cases that are sector-specific and relevant to local Minds.
- » *It encourages teams to ‘loop’ around the structure.* Local Minds can conduct a full project quickly to build experience and generate evidence, energy and buy-in, and then carry out a more in-depth project when they have created conducive organisational conditions.

To pilot this methodology and accompanying resources, five local Minds were recruited to be prototyping sites. As part of the selection process, local Minds were invited to describe a current challenge they were facing and outline why they felt service design could be used to address that challenge. In order to truly understand the relevance and applicability of the methodology, Mind selected a mix of: service-focused and organisational challenges; small and larger local Minds; and urban and rural localities. The five prototype sites that were selected (Tyneside Mind; Hillingdon Mind; Bedford, Luton & Milton Keynes (BLMK) Mind; Scarborough, Whitby & Ryedale (SWR) Mind; and Suffolk Mind) engaged in a four-month structured programme of work called Design in Action, which consisted of service design workshops in a central location, followed by their own practical application of the tools and methods they had been introduced to. Each prototyping site was represented by two members of staff who were charged with applying the process in their own organisation. Each site also had a supporting team comprising a design partner from the national Mind organisation and a design coach from the Innovation Unit.



Figure 2: Photo taken at the ‘grow’ phase workshop

Between February and May 2014, the teams came together five times for an all-day workshop (one for each of the phases – see **Error! Reference source not found.**). They were first introduced to the theory underpinning that phase of the methodology, before trying out some of the phase’s methods and tools. At the end of each workshop, each team agreed a set of activities to undertake in their own organisation in order to apply the phase of the methodology to their particular challenge.

At the end of the programme, all of the teams came together to discuss their experiences and opinions of the process, methodology, tools, methods and support. This, alongside a

formative evaluation conducted by an external evaluator, helped to ascertain the value of service design to Mind. The feedback from the different stakeholders involved was generally very positive: the programme was well designed, being ambitious and visionary from the outset; tying the work directly to existing projects ensured that the activities were contextualised and relevant; and all stakeholders saw that service design was a valuable process that could benefit them during times of austerity. The local Minds also felt that the strong personal relationships they developed with their support teams during the programme were also key to the success of the initiative. Because people worked side-by-side together without reference to their job titles or level of seniority, it created a space where people were encouraged to experiment, learn something new, express their latent creativity and be unafraid of failure- all of which were conducive to a positive learning environment.

The evaluation also showed that the five-phased approach (with its added emphasis on creating the right project conditions in 'set-up', and packaging up learning in the 'grow' phase) was appropriate and useful for local Minds. Although new concepts such as prototyping were initially difficult for people to understand, the simplicity of service design techniques translated well and ultimately led to new behaviours. In each of the prototyping sites, the use of service design resulted in a change of direction, whether in terms of the service focus, partnerships, or the business model, which ultimately benefitted the local Mind and their service users. Suffolk Mind and SWR Mind had their new service concepts (both of which replaced failing or decommissioned offers) funded by local trusts or commissioners, receiving around £40,000 to deliver successful pilots. The projects also generated impact beyond income and revenue: from enabling better relationships with communities, to supporting staff development and organisational capacity. BLMK Mind, for example, used service design tools to enable better relationships with services users in each of their localities, which has helped them to recognise and respond to need more efficiently.

However, the programme was not without its challenges and the evaluation also captured what people felt could be improved in the future. For example, orientating people with how the process was going to *feel* upfront (design's fuzzy front-end was very distinct from their usual service development approaches) was identified as an opportunity for improving future similar programmes. The SDiM team have subsequently developed an introduction to the approach through a 'service design project in a day'. These intense demonstrations based on fictional scenarios help people that are totally new to service design to understand from the outset what the whole process (in a nutshell) looks and feels like. In this way, the team avoid some of the negativity and frustration understandably experienced by the Design in Action participants, who felt that they were taken into the unknown.

The evaluation also showed that there were high expectations from the stakeholders in the local Minds that service design was about *new* services and technologies and they struggled to expose people quickly to the values of service design beyond 'innovation'. Although the SDiM team recognised and valued impacts such as incremental change and new staff behaviours and attitudes, these were not originally communicated as potential outcomes. This was taken into account in the production of future communication to ensure that the value of service design beyond 'new', and indeed beyond 'service', was effectively described. Managing expectation of the speed and the extent of the service design outcomes was also difficult; it took longer than expected to show the impact of SDiM against traditional Key Performance Indicators (KPIs). Service design processes, especially when new to an organisation, take more time to result in outcomes than less participative and iterative processes. However, it is also possible that traditional KPIs are not appropriate measures for the impact of service design and may need to be revised once the process is embedded.

‘Performing’ Service Design in Mind

During the initial prototyping phase, Mind learned a huge amount about their existing design legacies (Junginger, 2014) and the best ways for the internal Mind team to introduce and grow design capabilities in the organisation and the wider network. This knowledge has helped to guide the programme from prototyping to performing; supporting people to use service design and make the value of that visible.

As a way of codifying the practice from the prototyping phase, and as a legacy for the organisation, a set of resources was developed to support local and national Mind teams to go through this methodology. These resources, launched in November 2014, include: a service design methodology handbook, which introduces the methodology step-by-step and acts as a reference guide for running service design projects; service design tools that support each of the activities in the methodology; an ethnography handbook to help people to plan their research and analyse their findings; a deck of more than 50 method cards available to filter and match to project need; and a set of case studies from the prototype local Minds that have been presented to inspire and pass on tips to people interested in using service design. Aside from the resources that support the ‘set-up’ and ‘grow’ phase, which are less common to existing design toolkits, many of the service design tools and methods are typical of the approach, but redescribed and closely linked to the unique circumstances of local Minds.

The SDiM offer has proved popular with the network: the team has supported more than 25 local Minds to use service design; over £50,000 of income has been generated for the network; more than 100 sets of resources have been distributed; and over 100 people elect to receive regular SDiM updates. Following this success, in April 2015 SDiM became part of Mind’s core offer both internally and externally, with dedicated resources and budget. A road map to effectively grow and scale SDiM, agreed by the Management Executive Team at Mind, identifies the priorities for the programme of work over the next year as:

- » Designing the demand and the offer around SDiM, which means promoting SDiM resources and generating evidence of impact to demonstrate its value;
- » Promoting new partnerships to help grow the practice and attract more funding; and
- » Creating space and time for people to learn more about SDiM, so they feel more confident in using service design techniques.

The initial prototyping phase highlighted that that toolkits and handbooks on their own are not enough to motivate people to use service design and to feel confident and enabled to achieve impact and generate new services; in-depth support is needed in order to grow the practice in an effective way. The next stage will be focused on generating even more opportunities for Mind and local Minds to be exposed to service design, including:

- » Tying service design more directly with the current work which is going on in Mind departments;
- » Linking service design with the Mind’s internal grants scheme; and
- » Creating opportunities for Mind and local Minds to work with service design students and interns to expose their stakeholders to the design approach.

There also needs to be a focus on understanding how those strong personal relationships that proved crucial in the prototyping phase can be replicated at scale. As such, Mind have asked Innovation Unit to build an on-going partnership and mentoring relationship, which will support the team to continue the process of embedding excellent service design in Mind. Innovation Unit’s mentors will work to support the delivery of service design projects by

supporting teams to effectively manage the process, including providing an honest space to discuss worries, hopes, problems and questions. The mentors will also ensure that SDiM's tools, methods and approach are updated and in-line with the fast-evolving field of service design by providing a fresh, external perspective that is grounded in the practice of experts.

Conclusions

The SDiM programme represents an innovative offer for the Mind network and an invaluable set of resources for the whole organisation. Mind places people with direct experience at the heart of everything it does and nowhere is that more important than in the design of services that meet people's needs and aspirations. Service design provides local Minds with a structure to capitalise on their existing capabilities and creatively, actively and meaningfully involve service users in service design. Embedding service design in Mind maximises the potential impact of service design on the whole organisation. As Mind has developed its own approach to service design, the methodology is more authentic and in-line with how they operate and is easier to integrate across the whole organisation. This will ensure the long-term sustainability of the approach, where Service Design in Mind is not a 'one team job' but is owned by and delivered across all teams and departments.

SDiM was created on the understanding that non-expert designers, if well supported and exposed to design techniques in the right way, can become increasingly skilled and confident in design (Manzini, 2015). However, the experience outlined in this case study has also shown that design experts still have a key role to play in stimulating and supporting the process at the right time and in the right ways. For this to happen, Mind has started changing and pushing the boundaries of the traditional 'client - designer' relationship in order to shape the nature and quality of the design outcome (Sangiorgi, Prendiville, Jung, & Yu, 2015).

This case study highlights both the benefit of, and an approach to, embedding service design within an organisation, as well as why different models of collaborative partnership across sectors can (and should) be built. It is hoped this experience will prompt thought and offer inspiration to others embarking on a similar process.

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Current States: mapping relational geographies in service design

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Abstract

As Service Design navigates uncharted territory, maps of all kinds are becoming essential tools for the design process. Maps document the service offering in its current form, celebrating what works and identify challenges. They leverage the agency of visualisation and storytelling to educate, engage and guide internal and external stakeholders along the journey to service innovation. Maps as artefacts are becoming a disruptor for organisations that are accustomed to traditional ways of communicating and allow the voice of the customer to sing in the creation of future strategy and opportunities. Mapping, as a process, is an ideal way to foster co-design and collaboration across hierarchies and institutional sectors. In this way, it operates as a type of ontological design - designing back on the organisation that creates it.

KEYWORDS: service design, mapping, maps, service design methodologies, co-design

Introduction

I don't think it would be an understatement to say it was quite revolutionary for this institution; in the way we engaged with staff, the way we tested and validated ideas, and looked for opportunities was quite new. Staff were quite nervous at first, but really engaged. Although not all of them agreed with some of the outcomes, they understood the rationale and process. (Justine Hyde 2015, Acting CEO State Library of Victoria)

Service Design is a burgeoning field and has in recent years reached an adolescence of design research and practice. Services, complex and intangible, have arisen out of linear, industrial models of production and are enmeshed in the nonlinear daily lives of billions of people around the globe. In this tension, services form abstract flows between social, political and

economic landscapes and are often the interface for traversing from one terrain to another. Mapping is a formidable tool to navigate these complex landscapes and to visualise, understand, and guide us on the literal and metaphorical journeys of designing in the 21st century. Maps in the context of Service Design become “design Things”; socio-political assemblages that allow for “a space that permits a heterogeneity of perspectives among actors” (Björgvinsson, Ehn & Hillgren 2012 p102). A map becomes a space to gather both human (stakeholders) and non-human (services, touch-points) to address *matters of concern* (Latour 2005)². Understanding the agency of maps and the value they possess in their ability to communicate complexity through simplicity and reflect a holistic overview of an ecosystem, make them formidable tools for service designers in an increasingly knotty and abstract world.

At Meld Studios, we use maps in many of our projects and these serve different functions at different stages of the design process. Our maps are used as both an *object-in-use* and as a *way-of-imagining* (Hadlaw 2003 p25) and play enduring roles in maintaining the strategic direction of an organisation long after our consultancy has ended. *Maps as artefacts* are usually large-scale posters (some up to 4 metres long), with varying fidelity depending on their sequence within the design process. Low fidelity maps are either hand-sketched or designed with a deliberately naive visual style, to encourage participation and to emphasise the iterative nature of the design concepts in progress. The ‘unfinished’ approach mitigates intimidation for non-designer stakeholders and foregrounds a focus on interacting with the concepts within the maps as they are still being formulated. Maps visualise the complexity and interconnectedness of end-to-end services – their *relational geographies* – through vignettes of service scenarios for both front and back of house. Higher-fidelity maps, with more refined concepts are used towards the end of a project: to deliver a vision of a possible future-state scenario and in many cases, the roadmap for achieving this institutional change for our clients. As designers, maps allow us to: synthesise and structure our research; represent customers and their service journeys; sense-check with internal stakeholders; and engage staff and clients in the design process.

Mapping as process becomes a manifestation of our philosophical approach to designing *with* our clients and their customers. It is the social and physical action of creating (sketching, designing and annotating) the maps that visualise a service. Mapping allows conversation and reflection across hierarchies and departments, around the pain-points in the delivery of a service and inevitably within the organisation itself: “It becomes accessible to groups at various levels of engagement and enables opening of conversations via the pen and hand. It is a creative methodological process, which simultaneously acts as participant capacity building and research gathering” (Schultz & Barnett 2015, p6). Mapping provides opportunities for employees to build an ontological understanding of their own roles within a company as a “way of coding a reality we “know” but can never really see for ourselves” (Hadlaw 2003 p26), in many cases giving staff a new perspective on how their organisation functions as a whole. Mapping signifies a “cultivated habitus” (Stephens 1995, cited in Tonkinwise 2011 p 542) in that the participants are socialised into a habitus of codesign, which inscribes future behaviours of participatory decision-making and constitutes an opening for change to take place within the organisation.



Figure 1. The large scale and low fidelity of the map (*as artefact*) below, allows for stakeholders to participate in the critique, sense checking and enrichment of research findings. This constitutes mapping (*as process*) which inscribes the participants into a habitus of codesign and allows them to gain a holistic understanding of their roles within the wider ecosystem of service delivery. Image: Meld Studios

Visualising and storytelling: how we map

What this approach offers is a way to see that actors within a hybrid, which might be people, organisations, or digital or material things, have the capacities not just needs or requirements. Rather than seeing needs or product characteristics as pre-existing, this perspective recognises that configuring resources in a particular way results in particular types of capacities or qualities. (Kimbell 2015 p42)

As the geographical landscape of Service Design continues to evolve and its' borders are drawn and redrawn through the development of theory and practice, definitions are nuanced and varied. At Meld Studios we define Service Design as “the intentional and thoughtful design of internal and customer-facing activities needed to deliver a service” (Baty 2012). Our design practice is fundamentally about *intention* (Tonkinwise 2011, p.4) and is anchored in principles based on: a deconstructionist perspective to the problem; approaching ambiguity through multiplicity and the suspension of judgment; an evaluation of ideas through critique (internal) and testing (external); externalised thinking through making things explicit and tangible (from post-it notes to sketches & prototypes); iteration and optimism (Baty 2010 p70,³).

We see services as *social, material, relational and temporal* (Kimbell 2011, p49) and maps become significant vehicles to communicate these concepts depending on the intended outcome at each stage of our design process: Understand; Explore; Articulate; Realise (Meld Studios 2015). In light of this, our mapping styles are varied and deliberate. In the ‘Understand’ phase, we conduct research to better understand behavioural drivers and industry challenges. We collect data in interviews with stakeholders, customers and staff and conduct workshops, contextual enquiries and service safaris. We use Affinity Mapping to synthesise and analyse the data collected. We arrange and order data on post-it notes to discover patterns that form themes, to help us gain valuable insights into customer experience and service delivery. This

method allows us to do what Lucy Kimbell calls: *problem finding and problem setting*— allowing appropriate time at the start of a project to analyse the most important issues and consider how they are being framed (2015 p 96) with the wider context of service value creation.



Figure 2: Synthesised research data through Affinity Mapping (background), is married with concepts generated from stakeholder workshops to forms the basis for vignettes in the Current State Map (foreground). Image: Meld Studios

In the ‘Explore’ phase we playback our insights in the form of a Current State map. These maps visualise the stories of the service for customers and for staff and render intangible notions of relational complexity into an accessible narrative.

A story describes actors and actions; it suggests relationships, which we may represent in visual form. A story of what happens suggests a model of what is—an interpretation of our research. The process of coming to a shared representation externalises individual thinking and helps build trust across disciplines and stakeholders. (Dubberly, Evenson & Robinson 2008)

Current State maps are usually low-fidelity, hand-drawn and paper-based to allow for critique, sense checking and ideation, often in a series of stakeholder workshops with the maps. The tangibility, tactility and large scale of the maps encourage contribution and collaboration. Current State maps also foster an understanding of the emotional as well as the rational journey: vignettes and scenarios highlight pain points and moments of delight, using the power of the customer voice. These are a form of *Opportunity Mapping* (Kimbell 2015) and form the basis for refining, prototyping and testing designs for service improvements. They can also be linear customer journeys or ecosystem maps depending on the framing of the problem space in the ‘Understand’ phase.

After testing and playback, we ‘Articulate’ potential future service possibilities through design, in a Future State map. The Future State map is a highly visual and refined artefact, designed to be a lasting reference point for organisational change. The Future State map utilises the richness gathered from research insights and generative concept workshops, references challenges in the Current State reality and converts them into opportunities for the future. It is through this forecasting that new offerings, products, services, spaces and behaviours can be explored and eventually implemented. In order to ‘Realise’ a service redesign, we can create a Service Roadmap to facilitate a plan for enacting a Future State

vision. Roadmaps identify business benefits, impacts, and risks and aid in prioritising ‘quick wins’ versus ‘long term gains’. There is an inherent temporality to Service Roadmaps as they propose a strategy for action within a designated time frame. All of the maps we use enable us (both designers and co-designers) to “uncover connections and relations previously unseen as well as realities previously unimagined” (Schultz & Barnett 2015, p3) and to mobilise these in order to manifest change in the companies we work with.

Case study: Co-designing the future of the State Library

Something that was a bit unexpected, and unplanned by the Library was that staff actually learnt a lot more about the Library and how it works, than they may have previously realised. Outside of their own teams and departments, they learnt a lot more about how the other parts of the Library work and the challenges facing them. (Justine Hyde 2015, Acting CEO State Library⁴)

In March 2014, The State Library of Victoria engaged Meld Studios to redesign the Library’s services. Over a twelve-week period an integrated, participatory design team (three designers from Meld Studios and two staff from the Library) sought to understand the current state of the Library’s service delivery and the opportunities for a service model redesign to enable the organisation to take-on a new public role in the digital future. This meant that the codesign project had an additional component of skills transfer: training the internal project team to have the capabilities to have ownership of the vision, confidence to lead the next phases of work and that all Library staff were given the opportunity to shape their own future (Gagarin 2014).

The project began with two weeks of intensive research (the Understand phase) shadowing, observing and interviewing customers as they interacted with the Library and its services. The project team also talked to Library staff and senior managers to help identify strategic themes for the new direction of the Library. In order to process the scale and complexity of the research insights, the team chose to externalise and share their research using Affinity Mapping.

To capture our collective insights we did our analysis and synthesis upon the walls using post-it notes, rather than trading documents created by each individual... We captured our research observations, and insights on post-it notes then clustered them into groups to see the bigger picture and identify patterns. We did our thinking outside of ourselves and made sense of what we were hearing and seeing as a team. (Gagarin 2014)

The findings from the research were recorded in four Current State journey maps covering the following themes: Interacting with the physical space; Information and collection access; The Library as a place to work; and Community engagement and programming (Hyde, Conyers & Flynn 2015). The maps were made widely available for the Library staff to review and critique. In many cases, this was the first time staff had been exposed to codesign methodologies. Participation in the mapping process allowed for an introduction into the democratic process of participatory design, drawing upon the Scandinavian tradition, which advocates that: “people who are affected by a decision or event should have an opportunity to influence it” (Hussain, Sanders & Steinert 2012, p. 91). See figure 1.



Figure 3: Over 2 weeks of research, insights were collected. Affinity Mapping was used combined with sketches of the physical space, to structure, contextualise and externalise the insights for the whole team to access. Image: Meld Studios

The journey maps were an important communication tool during the project. They were highly engaging and non-linear. Staff could effectively dip in and out of sections of the map to gain an overall impression of the current state, or read it comprehensively. Some of the research results were strongly tied to physical spaces of the Library and the journey maps allowed staff to quickly zero in on services or spaces of particular interest to them. (Hyde, Conyers & Flynn 2015)

The Explore phase began with series of ideation workshops aimed at exploring the opportunities within the Library for service redesign. They required both formal and informal involvement from staff and staff from customer service, reference, retrieval staff, conservation, curatorial, property, programming and managerial staff all participated in the workshops (Hyde, Conyers & Flynn 2015). The Current State maps were used to identify opportunities and service gaps and were utilised as an internal tool to disseminate the concepts amongst different divisions. The maps were strategically placed in staff areas and staff were encouraged to give feedback and ideas directly onto the maps, via post-it notes (see figures 2 & 4.) Creating this open dialogue allowed for internal buy-in from Library staff and facilitated a smoother transition to change: “given the nature of services, and the service designer’s reliance on co-design methods and visualisations... the design process can be viewed as a communication process” (Blomkvist & Holmlid 2009). Concept development was generated by another series of workshops, which used the previously identified opportunities to build new ideas. This included developing a set of guiding service principles that arose organically out of the first two phases of the project (Hyde, Conyers & Flynn 2015).



Figure 3: Internal Library stakeholders review and critique the Current State maps. These were left up for several weeks to allow for as many staff members as possible to review and contribute their feedback. Image: Meld Studios

The concept development became the foundation for three live prototyping sessions that were conducted in the Library before opening hours. More than 100 signs were printed, 80 reams of black fabric, furniture moved and uniforms adopted to test the concepts in action. Over 75 staff participated role-playing new customer and staff journeys. The same day feedback sessions were held at lunchtime to gauge staff responses. These were then added to concept sketches that formed the basis of the Future State map (the Articulate phase). Not only were the prototyping sessions immersive and engaging, they also demonstrated *value-in-use* for the staff members that were more sceptical about the service changes: “exploratory prototyping brings a future innovation ecosystem into partial view and creates concepts and actions that shape value-in-use” (Kimbell 2015, p 154).

The Future State map encased a single vision of the new Library service model. It was 3 metres long and designed to be viewed on a wall and shared with people, in contrast to a report that is read and absorbed individually. In this way, the design of the map actively encourages discussion and collaboration (Hyde, Conyers & Flynn 2015). The new Library vision has sparked over 30 individual projects, to be undertaken over the next three to four years (the Realise phase), some of which have already been implemented.

At a distance, the map gives a broad overview of the future service. At the macro level it shows an integrated service model that clearly places the collections at the heart of everything we do, with services built around the needs of the customers instead of around our internal workflows or the physical layout of the building, a deliberate decision in order to future proof the model should we make changes to the configuration of the building (Hyde, Conyers & Flynn 2015).

For the embedded team, additional value came from designing, prototyping and testing for 12 weeks within the Library. This created opportunities for the project team to: test their concepts on the people who would need to implement and live them; manage anxieties about change in situ; identify advocates to help lead the change; identify who had the power to block change; and hear the challenges verbatim (Gagarin 2015). This all significantly contributed to the success of the project.



Figure 5: The Future State map is presented to senior stakeholders. It is currently being used to implement the Library's service strategy over the next 5 years. Image: Meld Studios

Conclusion:

Through collective activities, problems are brought into being. They are framed through social processes that make some things matter more than others, and that box things up in ways that are recognisable to the people who find the resources required to take action. (Kimbell 2015, p 96)

Mapping plays a pivotal role in Service Design at Meld Studios. We use *maps as artefacts*, in all stages of the design process. Maps are excellent navigation tools for abstract service ecosystems. Maps are self-sufficient storytellers and can embody the future vision of an organisation and provide inspiration for years to come. Many maps go on to live long and fruitful lives in the companies we have worked with. The *Future State* map in the State Library, now sits on the CEOs wall as a daily reminder of their 5-year vision. We also use *mapping as process* consistently throughout our projects. We invite our clients, their staff and customers to design *with* us and just as we design things, so to do those things act back upon us in a hermeneutic circle of ontological design (Willis 2006). *Mapping as process* fosters reflexivity and collaboration and allows these practices of participatory design to become embedded in the organisations that undertake them, inscribing a new habitus.

Maps and mapping played an essential role in the redesign of the service model for the State Library of Victoria. The ability for maps, to display and decipher a significant quantity of information was fundamental to the success of the project at every stage. The large scale and flat format of the maps allowed openings for democratic discussions and collective feedback. The fidelity and visual accessibility of the maps created opportunities for Library staff to add their expert insights without inhibition. The social practice of mapping encouraged both advocates and critics for change, to make their voices heard. The collaborative learning of mapping skills by the Library staff has empowered them to implement some of that change. Mapping is not new to Service Design but exploring the breadth of maps and mapping process in this paper, may yield some useful insights for other service designers interested in new ways to navigate the increasingly complex and relational nature of service geographies.

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¹ This verbatim came from interviews conducted with Library staff after the completion of the service design project (August/September 2015). These transcripts are part of internal research conducted by Meld Studios and remain unpublished.

² For a concise summary of the human - nonhuman dialectic see Alben Yaneva's notes in her article *Making the social Hold: Towards an Actor-Network Theory of Design* (2009, pp. 286)

³ Steve Baty updated this list (published internally), from the original 5 (published in *Interactions magazine* in 2010) to 8 in 2015 as an iteration of Meld's ongoing design process.

⁴ *Ibid.* 1.